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CITY OF EUREKA GENERAL PLAN



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Background Report



Prepared by:

J. Laurence Mintier & Associates
Arnold Herskovic
Dowling Associates
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Angus McDonald & Associates



February 1997



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GENERAL PLAN

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Prepared by:

J. Laurence Mintier & Associates
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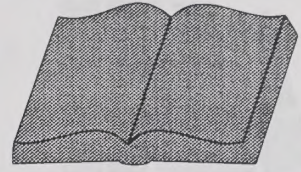
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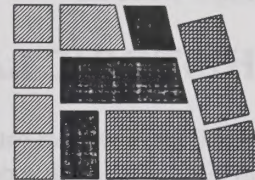
INTRODUCTION

The City of Eureka is a coastal city located on the northwestern corner of the State of California. The City is situated on a narrow strip of land between the Pacific Ocean and the Eureka Peninsula. The City is a major port and is one of the largest cities in the state. The City is a major center for the fishing industry and is also a major center for the timber industry. The City is a major center for the service industry and is also a major center for the manufacturing industry.

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CHAPTER 1

LAND USE



INTRODUCTION

This chapter provides the principal focus for the General Plan Background Report by describing existing land use conditions and local, regional, state, and federal plans and policies that have a bearing on land use in Eureka. The information in this chapter comes primarily from the City of Eureka's land use data base, previous plans and reports prepared for the City, the Humboldt County General Plan, and other local sources.

This chapter is divided into 12 sections. The first section describes the existing city limits and the General Plan Planning Area. The second section describes the regional setting of the General Plan Planning Area. The third section summarizes historic land use planning in Eureka. The fourth section discusses zoning in Eureka. The fifth section describes the city's annexation history and summarizes annexation procedures and policies. The sixth section discusses the Local Agency Formation Commission and Eureka's Sphere of Influence. The seventh section summarizes county land use regulations in unincorporated parts of the Planning Area. The eighth section discusses other local plans affecting Eureka. The ninth section summarizes relevant regional, state, and federal regulatory agencies. The tenth section is a set of findings related to land use in the General Plan Planning Area. Finally, the eleventh and twelfth sections list bibliographic references and persons consulted in the course of preparing this chapter.

REGIONAL SETTING

Lying on California's North Coast, Eureka is part of the Pacific Rim. It is the westernmost city on the west coast of the United States and the largest coastal city in California north of San Francisco. Eureka is situated on Humboldt Bay, which is the most important port between San Francisco and Portland. San Francisco is approximately 275 miles south of Eureka, and Portland is approximately 350 miles north of Eureka. Figure 1-1 shows Eureka within the county, state, and region.

CITY LIMITS AND PLANNING AREA

Eureka's city limits are defined on the west and north by Humboldt Bay and Arcata Bay, respectively, and include Indian and Woodley Islands. On the east, the city limits extend to Indianola Cutoff and then move west on a line parallel with Arcata Bay south of Murray Field to Harrison Avenue. On the south, the city limits extend to the Eureka Municipal Golf Course, but exclude the Cutten and Pine Hill areas. The incorporated city contains approximately 16.37 square miles (10,477 acres) of land and water area, including streets and other rights-of-way.

The Planning Area for the Eureka General Plan includes the incorporated city plus territory east to Indianola including Freshwater Corners, south to the northern boundary of the College of the Redwoods, west to include the Samoa Peninsula, and north to the town of Samoa. The Planning Area (including the incorporated city) contains approximately 46.81 square miles (29,960 acres) of land and water area, including streets and other rights-of-way. Figure 1-2 shows the General Plan Planning Area and the Eureka city limits.

HISTORIC LAND USE PLANNING IN EUREKA

The City of Eureka established its first Planning Commission in 1940, and adopted its first zoning ordinance in 1942. The zoning ordinance was rewritten in 1953, and a subdivision ordinance was enacted in 1957. The City hired a full-time planning staff in 1960 and began preparing the City's first general plan in 1962. The City was awarded a federal urban planning grant which covered most of the cost of preparing the new general plan. Concurrently with the City's efforts to develop a general plan, the State Division of Highways (now Caltrans) initiated a transportation study of the Eureka area. The City adopted its first General Plan in January 1966 (referred to as the 1965 General Plan).

1965 GENERAL PLAN

The 1965 General Plan was Eureka's first effort to develop a coordinated plan for the physical development of the city. The Planning Area included territory extending east to Freshwater, south to include Humboldt Hill, west to and including the Samoa Peninsula, and north to include Indian Island and the town of Samoa. The 1965 Plan looked 25 years ahead to 1990, anticipating a population increase in the Planning Area from 43,000 in 1960 to 57,000 in 1990.

Major Proposals of the 1965 General Plan

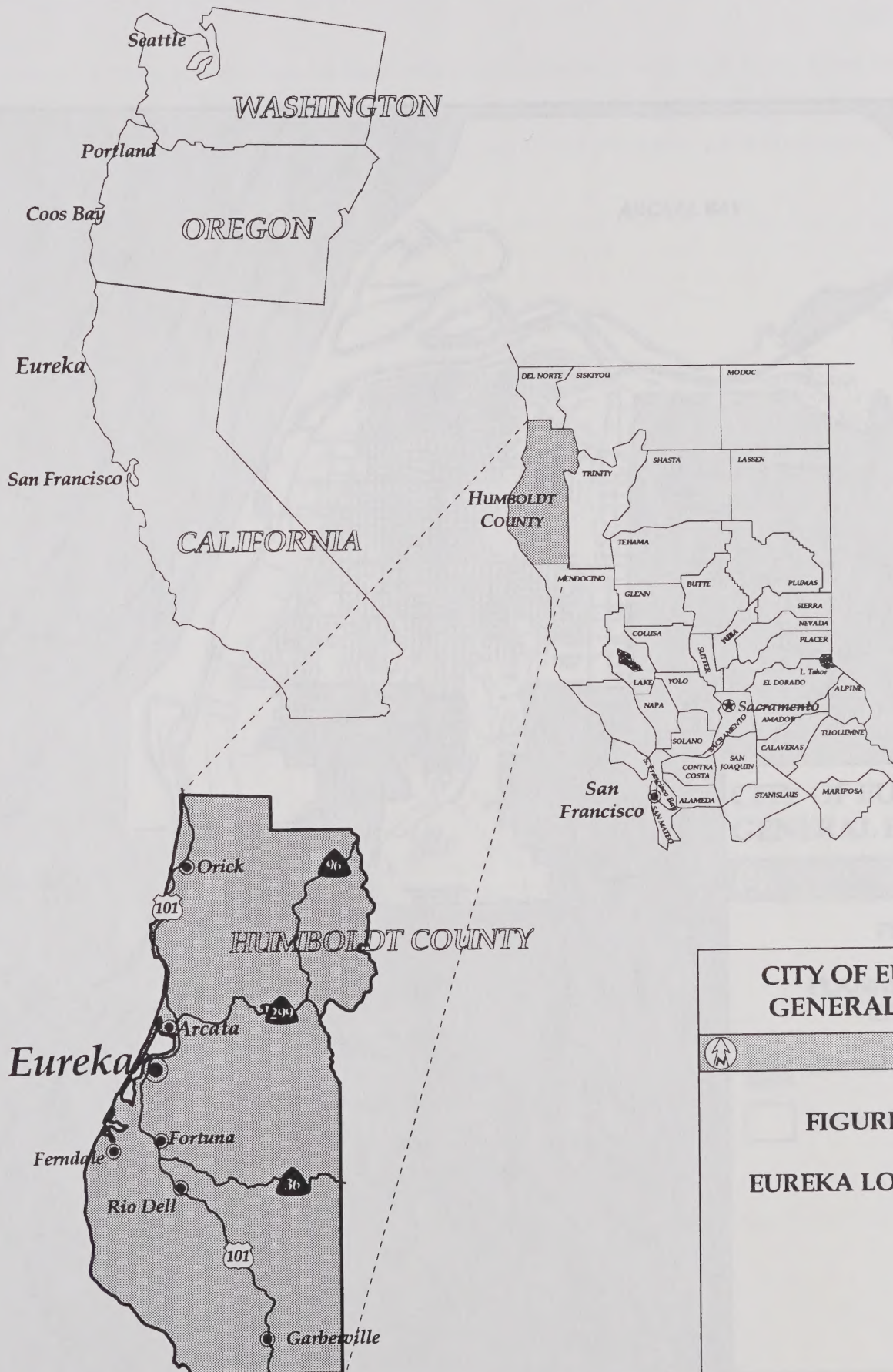
The major proposals of the 1965 General Plan were as follows:

- **New Cross-Town Freeway:** The plan proposed to build an elevated Highway 101 freeway between Downtown and the Waterfront (i.e., between 2nd Street and 3rd Street) where it would "do most to enhance both the economy and the appearance of the community, and . . . remove the fewest homes."
- **Waterfront Redevelopment:** The plan proposed to replace vacant warehouses along the waterfront with a complex of motels, restaurants, and a convention center "modeled after Jack London Square in Oakland or Fisherman's Wharf in San Francisco."
- **Bridge to Samoa Peninsula:** The plan proposed to build a bridge to the Samoa Peninsula connecting Eureka with Indian Island, Woodley Island, and the peninsula.
- **Neighborhood Parks:** The plan proposed to combine City park land with elementary school playgrounds and to develop community parks in Cooper Gulch and in Harrison Avenue Gulch.
- **Protect Gulches:** The plan proposed to retain gulches in their natural condition "because they are among the most important contributors to Eureka's desirability as a residential community."

Generalized Land Use

The 1965 General Plan also proposed areas for residential, commercial, and industrial land use. For residential use, the plan proposed high-density residential development north of Del Norte Street, medium-density residential development north of Harris Street and west of the high school, and low-density residential development in outlying areas.

For commercial and office use, the plan envisioned Downtown as the business center for the area, but recognized that Wards-Disco and the Sears shopping center would also play a regional role. The plan envisioned Henderson Center as a community shopping center, and designated various neighborhood shopping districts at strategic locations throughout the city. The plan also envisioned a waterfront commercial district in the area between C Street and I Street. The plan envisioned offices in Downtown



CITY OF EUREKA GENERAL PLAN



FIGURE 1-1
EUREKA LOCATION

between H Street and M Street, medical offices on Henderson Avenue and Harris Street, and service commercial along Highway 101.

For industrial use, the plan called for light industry near Downtown and heavy industry along the western waterfront and on the Samoa Peninsula.

For recreational use, the plan proposed the following new or expanded urban parks: Sequoia Park (add 1.8 acres); Cooper Gulch (new park on 25 acres of land); adjoining Zane Junior High School (acquire 17 acres); Harrison Avenue Gulch (acquire 12 acres); California and Del Norte Streets (acquire 1.3 acre block); Lincoln Park (add 2.1 acres); four sites on ridges south of the golf course (acquire 3 to 6 acres for each); and Samoa Peninsula (develop picnic and launching areas at the former seaplane base).

Transportation Improvements

For street and highway facilities, the plan envisioned a new elevated cross-town freeway between 2nd Street and 3rd Street. The plan argued that this configuration would present the best of Eureka to tourists, with the Bay on one side, the city on the other, and the Carson Mansion ahead. Second and 3rd Streets would be made a one-way couplet to serve as frontage road for the new freeway. The plan also considered an alternative alignment depressed between 9th Street and 10th Street. The plan argued that this route would be less expensive to develop, but recognized that it would remove 256 moderately-priced housing units and could make Downtown and Waterfront improvements more difficult. The plan also envisioned Harris and Henderson and E and F Streets as a one-way couplets. As mentioned above, the plan proposed a bridge providing access to Gunther Island (since renamed to Indian Island), Woodley Island, and the Samoa Peninsula.

For other transportation facilities, the plan envisioned airports at Murray Field and at Eureka Municipal Airport, both extended to 3,000 feet in length. The plan targeted Gunther Island for a new Small Craft Harbor if demand warranted additional space.

1973 CORE AREA PLAN

In January 1973, the City of Eureka completed a Core Area/Downtown-Waterfront Development Plan (herein referred to as the 1973 Core Area Plan). Using 1990 as its planning horizon, the document contains a precise plan, a design plan, an implementation plan, and design guidelines. Land uses recommended for the Core Area were based on the following objectives:

- Intensify the concentration of economic activity within the Core Area.
- Protect the desirable industrial base within the Core Area.
- Effectively connect the Waterfront with the central Downtown, and provide adequate public access from all Core Area localities.
- Provide a variety of housing opportunities within the Core Area.
- Provide ample recreational opportunities and an enhanced urban environment, through a well-planned system of parks and open spaces.

Major Proposals of the 1973 Core Area Plan

The major proposals of the 1973 Core Area Plan were as follows:

- **Cross-Town Freeway:** Unlike the 1965 General Plan, the 1973 Core Area Plan opted for the alternative alignment depressed between Ninth Street and Tenth Street. This alignment, the plan argued, would "provide excellent direct access to the Core Area, while at the same time removing through-trips and noisy trucks from the heart of the downtown area."
- **Industrial Development:** The plan proposed the redevelopment of the "West End Industrial Area," which extends westward from Highway 101 and southward from the rail yards, to accommodate industrial development. One use targeted by the plan as particularly well-suited to the site was a proposed auto center.
- **Commercial Expansion Area:** The plan proposed redevelopment of the "West End Commercial Area," which extends westward from C Street and includes the rail yards, to accommodate new commercial development. The plan also proposed residential development in the area adjacent to the Small Craft Harbor. This area was targeted as an alternative site for a proposed auto center.
- **Boating Facilities:** The plan proposed expansion of the Small Craft Harbor and construction of a new marina in the approximate location of Adorni Center. The new marina at the Adorni Center site represented a change from the 1965 General Plan which proposed construction of such a facility on Gunther Island, if and when the demand warranted a new facility.
- **Central Waterfront:** The anchor for waterfront development in the 1973 Core Area Plan was a waterfront park at the foot of F Street and extension of a boardwalk from C Street to M Street. The plan also proposed to concentrate tourist, recreation, and specialty shops between C and G Streets. The plan reserved the area west of C Street for fish processing activities. The plan also proposed a continuous pedestrian promenade at the water's edge between C Street and an extended V Street.
- **F Street Mall, Conference Center, and Civic Center:** Perhaps the most ambitious component of the 1973 Core Area Plan was the proposal to transform F Street and portions of 4th Street into a covered pedestrian mall between the Waterfront and the proposed cross-town freeway (approximately Tenth Street). The plan envisioned new commercial development along F Street which would supplant existing historic structures with multi-story structures up to 100 feet in height. At the southern end of the F Street Mall, adjacent to the proposed cross-town freeway, the plan proposed the development of a conference center. At the eastern extent of the 4th Street mall (terminating at I Street), the plan proposed development of a civic center.
- **Historic Old Town:** As noted above, the plan proposed a covered pedestrian mall in what is today the heart of Old Town Eureka. The plan instead proposed to develop Old Town in an eight-block area between I and M Streets and 2nd and 3rd Streets.
- **Bayshore Residential:** Finally, the plan proposed a significant amount of new housing along the bayshore east of what is today the Samoa Bridge.

1977 GENERAL PLAN

In September 1977, the City of Eureka adopted a new General Plan which consisted of a policy document and 13 technical background reports. The 1977 General Plan, which was superseded in 1997, was an amalgamation of proposals from both the 1965 General Plan and the 1973 Core Area Plan. The plan identified three concepts as basic to the structure of the plan--compatibility, convenience, and the neighborhood unit. The result was that unlike previous plans, the 1977 General Plan focused attention primarily on Eureka's neighborhood life.

The Planning Area for the 1977 General Plan was significantly smaller than the Planning Area for the 1965 General Plan. The 1977 Planning Area included territory extending east to include Indianola Cutoff and Old

Arcata Road, south to the southern city limits, west to and including the Samoa Peninsula, and north to include Indian Island and the town of Samoa. Missing from the 1977 Planning Area was the territory east to Freshwater or south to Humboldt Hill, which was included in the 1965 General Plan. The 1977 General Plan looked approximately 20 years ahead to 1995 and anticipated population in the Eureka Planning Area during this time frame to grow to between 43,900 and 51,900.

Major Proposals of 1977 General Plan

The major proposals of the 1977 General Plan were:

- **Neighborhoods:** The plan proposed to maintain and upgrade the city's neighborhood environment and encourage infill development based on the Neighborhood-Unit Concept. The plan also proposed incentives and direct assistance for the rehabilitation of approximately 2,000 housing units.
- **New Growth:** The plan proposed to direct new development into "non-sensitive, non-hazardous" open space adjacent to the City's gulch greenways. The plan provided for an additional 2,000 housing units.
- **Neighborhood Parks:** The plan proposed eight new neighborhood parks to be located in Jefferson, Lundbar Hills, Samoa, LaFayette, Worthington, Grant, Pine Hill, and along the Waterfront near K Street. The plan also proposed seven waterfront plazas along Humboldt Bay shores and creation of a formal Gulch Greenway System.
- **Marina:** The plan proposed development of a new marina on Woodley Island. This was in contrast to the 1965 General Plan, which called for a new Small Craft Harbor on Indian Island, and to the 1973 Core Area Plan, which proposed a new marina along the Eureka shore in the approximate location of the Adorni Center.
- **Commercial Development:** The plan proposed to expand commercial use on the east side of town in the Bazaar-Montgomery Ward area and to revitalize the Central Business District according to the 1973 Core Area Plan.
- **Industrial Development:** The plan proposed to concentrate industrial uses on the west side of town and to upgrade the northwestern waterfront area for fishery-related uses.

Land Use Designations

The land use designations used in the 1977 Eureka General Plan are summarized in Table 1-1.

TABLE 1-1 1977 GENERAL PLAN LAND USE DESIGNATIONS City of Eureka			
Designation	Purpose	Residential Density	Minimum Lot Size
Rural	To provide for very low-density residential uses in rural parts of the Planning Area.	Up to 1 dwelling unit per acre	42,000 square feet
Estate	To provide for very low-density residential uses in urban parts of the Planning Area.	2 to 3 units per acre	12,000 square feet
Suburban	To provide for low-density residential uses in urban parts of the Planning Area.	4 to 7 units per acre	6,000 square feet
Multi-Family, Medium Density	To provide for medium-density residential use in urban parts of the Planning Area.	8 to 17 units per acre	2,500 square feet
Multi-Family, High Density	To provide for high-density residential uses in urban parts of the Planning Area.	18 to 43 units per acre	1,000 square feet
Gulches and Greenways	To protect open space located in gulches and other natural areas within urban parts of the Planning Area.	n/a	n/a
Agricultural, Forest, and Other Open Space Areas	To protect open space located in rural areas of the Planning Area.	n/a	n/a
Central Business District	To provide for a wide variety of retail, cultural, office, and educational establishments in the city core.	n/a	n/a
Waterfront Commercial	To provide for a diverse mixture of water-related uses along the city's central waterfront.	n/a	n/a
Office Residential	To provide for limited office use in residential neighborhoods located adjacent to commercial centers.	n/a	n/a
Commercial Service	To provide for service-oriented commercial uses along arterial streets and near major intersections.	n/a	n/a
Commercial Residential	To provide for mixed commercial and residential uses in the eastern part of Downtown on either side of the Samoa Bridge.	n/a	n/a
Community Shopping	To provide for the development of community-serving retail uses in areas with higher residential density.	n/a	n/a
Neighborhood Shopping Designation	To provide for the development of neighborhood-serving retail uses in transition zones between neighborhood units.	n/a	n/a
Industrial	To provide for manufacturing and heavy commercial uses in areas separated from residential use.	n/a	n/a
Source: City of Eureka, 1977 General Plan			

1984 HOUSING ELEMENT

Responding to new state housing element requirements, the City adopted a revised housing element in 1984. The housing element superseded the element contained in the 1977 General Plan, and contained goals,

objectives, and implementation programs. The element discussed existing and projected housing needs, including available land and potential constraints to housing.

1984 LOCAL COASTAL PROGRAM

In May 1984, the City of Eureka adopted a Local Coastal Program (LCP) in accordance with the California Coastal Act. The LCP expanded a draft 1981 LCP Land Use Plan and a 1982 LCP Land Use Plan. Prior to being superseded by the City's *General Plan* in 1997, the LCP governed land use and development within the Coastal Zone, superseding the 1977 General Plan and preexisting zoning in these areas (see Figure 1-3). The stated purpose of the LCP was to further the economic productivity and social well-being of the City and the region in conjunction with major natural resource enhancement and protection. The LCP contained numerous goals and policies related to land use that were implemented primarily through land use and zoning designations, which, in the case of Eureka's LCP, were synonymous (i.e., land use designations also serve as zoning designations). For a summary of these designations see the section below on Zoning.

EUREKA REDEVELOPMENT AGENCY PROJECT AREA PLANS

According to State redevelopment law, the plans and programs of redevelopment agencies must be consistent with the general plan for the jurisdictions in which they operate. Redevelopment plans are typically programmatic in nature, with very little emphasis on specific land use initiatives. The most definitive statement of the Eureka Redevelopment Agency's development policies for its three project areas is contained in its *Implementation Plan*, which was adopted in December 1994. That plan sets out goals, objectives, policies, and implementing activities/programs according to which the Agency will operate. Figure 1-4 shows the boundaries of the Agency's three project areas and Table 1-2 lists the goals and policies for each of the three projects.

TABLE 1-2

EUREKA REDEVELOPMENT AGENCY GOALS AND OBJECTIVES

Eureka Century III NDP Phase I Urban Renewal Plan

Goal To revitalize that portion of Eureka's core area containing the Old Town district

Objectives

- To eliminate economic and physical deficiencies and other blighting factors.
- To eliminate economic deterioration and underutilization of property.
- To facilitate coherent development among the project areas and encourage arts-related development and activities to create an appealing destination for local residents and tourists.

Eureka Century III NDP Phase II Urban Renewal Project

Goal: To revitalize that portion of Eureka's core area containing the eastern portion of Old Town and adjacent districts while preserving the architectural and historical heritage of the area.

Objectives

- To eliminate physical deficiencies and improve the quality of the built environment adjacent to Old Town and U.S. 101 corridor to conform to the high standard of quality found in the remaining area.
- To strengthen and stimulate commercial activity in the area.
- To facilitate coherent development among the project areas and encourage arts-related development and activities to create an appealing destination for local residents and tourists.

Eureka Tomorrow Redevelopment Project

Goal: To revitalize Eureka's core area by enhancing the waterfront for both industrial and recreational purposes, facilitating the development and redevelopment of the industrial areas, preserving and strengthening the residential areas and commercial areas, and improving public space and facilities.

Objectives:

- To revitalize the Eureka waterfront and eliminate blighting influences.
- To eliminate physical deficiencies and stimulate redevelopment and development of the industrial areas.
- To eliminate blighting influences and improve and strengthen residential neighborhoods and supporting commercial areas.

Source: *City of Eureka Redevelopment Agency Implementation Plan*, December 1994.

In addition to the goals and policies shown in Table 1-2, the *Implementation Plan* describes four activities or programs to implement the goals and objectives. These are as follows:

- **Waterfront Revitalization Activities.** The Agency will provide assistance and sponsor activities which will improve, rehabilitate, develop and redevelop the waterfront. These activities include assistance for rehabilitation of existing waterfront properties, the construction and reconstruction of streets, the provision of public improvements to stimulate private investment, assistance for acquisition, the disposition of public properties, the provision of community facilities and improvements to community facilities. (Eureka Tomorrow Project only)
- **Acquisition & Development Assistance.** The Agency will offer assistance for acquisition, assembly and development of properties that are vacant or underutilized and economically or commercially viable and reasonable.
- **Agency Assistance in the Provision of Public Improvements & Infrastructure.** The Agency will assist in the provision of public improvements (e.g., improvement or installation of water and sewer facilities, public spaces, streetscape amenities, etc.) which will enhance residential neighborhoods and existing commercial enterprises, support industrial operations, and stimulate private investment.
- **Street & Road Improvements.** The Agency will assist in the upgrading and reconstruction of streets which will lead to improved access to and traffic circulation within the area. These activities will reduce potential hazards and assist in promoting safe neighborhoods and commercial and industrial revitalization.

The goals, objectives, policies, and programs of the *Implementation Plan* go hand-in-hand with the financial program that the Agency administers to fund its operations.

ZONING

Under state law, cities and counties have broad latitude in establishing zoning standards and procedures. Outside of the general requirement for open space zoning and several special requirements governing residential zoning, state law establishes only broadly the scope of zoning regulations and sets minimum standards for its adoption and administration. One key requirement is that zoning be consistent with the general plan.

Eureka adopted its first zoning ordinance in 1942 and rewrote the ordinance in 1953. Since then, Eureka's Zoning Ordinance has been amended periodically to reflect changing conditions in the city. Zoning districts for non-coastal and coastal zone areas are summarized in Table 1-3. Figure 1-5 shows zoning designations for Eureka.

Century III
NDP Phase I

Century III
NDP Phase II

Eureka Tomorrow

CITY OF EUREKA
GENERAL PLAN



FIGURE 1-4
REDEVELOPMENT
PROJECT AREAS

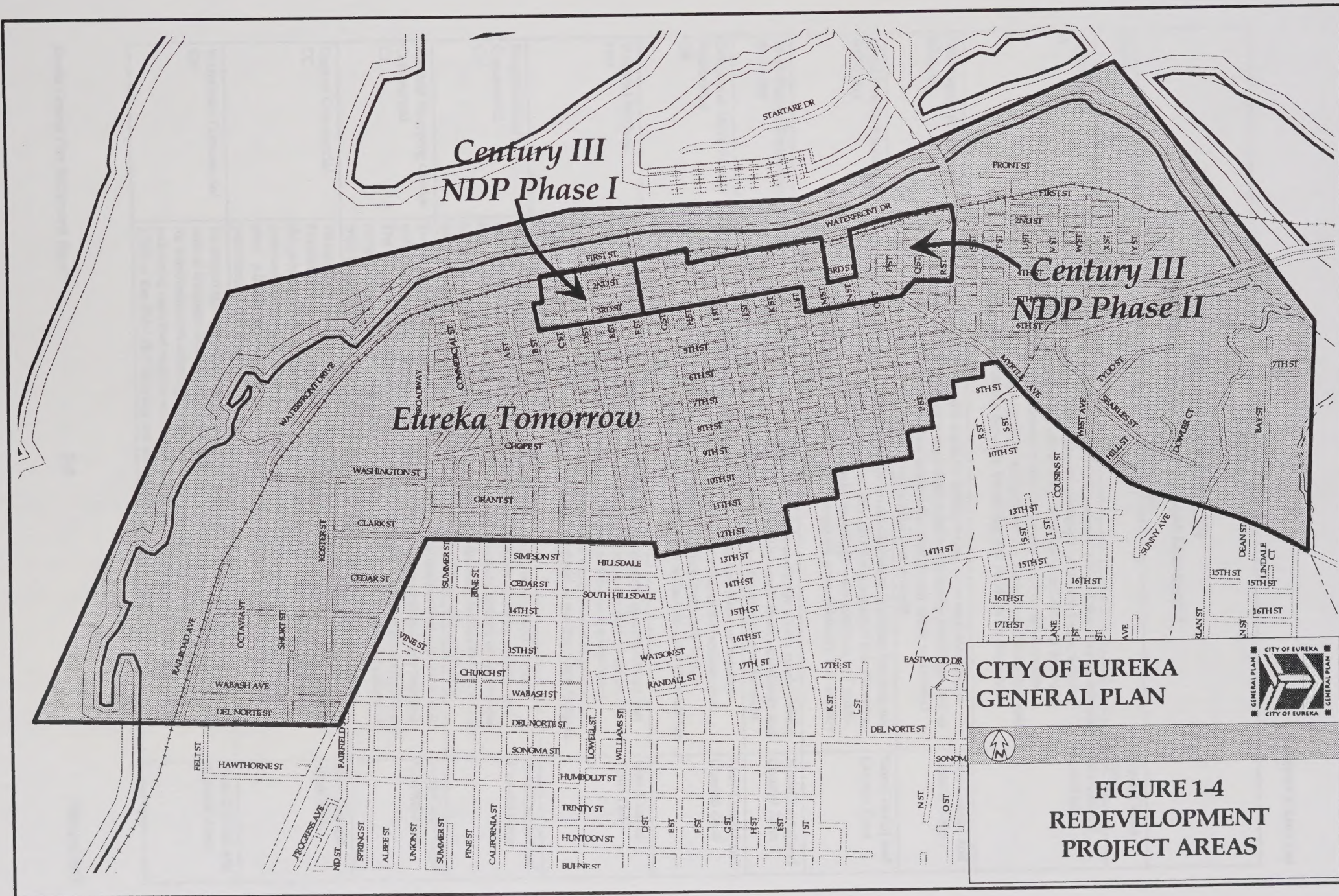


TABLE 1-3
ZONING DISTRICTS
(See Table 1-4 for Development Standards)
City of Eureka

District	Purpose	Coastal Zone Status
Agricultural A	To permit the conduct of certain agricultural pursuits on land that may be annexed to the City; to prevent premature urban development of certain lands, which eventually will be appropriate for urban uses, until the installation of drainage works, streets, utilities, and community facilities make orderly development possible; and to ensure adequate light, air, and privacy for each dwelling unit and to provide adequate separation between dwellings and facilities for housing animals.	Non-Coastal Zone Only
One-Family Residential RS-6,000	To reserve appropriately located areas for family living, to protect one-family dwellings from the lack of privacy associated with multi-family dwellings, and to provide space for semipublic facilities needed to complement urban residential areas and for institutions that require a residential environment.	Non-Coastal and Coastal Zone
Multi-Family Residential RM-2,500	To provide a multi-family district suitable for development of cluster housing and townhouses and row houses on large sites. It is also the purpose of this district to permit replacement of obsolete single-family dwellings with duplexes and multi-family dwellings that will not significantly change the predominantly low-density residential character of their surroundings.	Non-Coastal and Coastal Zone
Multi-Family Residential RM-1,000	To permit higher densities in areas close to employment areas where single-family dwellings are expected to be progressively replaced by multi-family dwellings and to provide an opportunity for trailer parks to locate in a residential environment.	Non-Coastal and Coastal Zone
Office and Multi-Family Residential OR	To provide opportunities for offices of a semi-commercial character to locate outside commercial districts and to provide space for semipublic facilities and institutions which may appropriately be located in office and multi-family dwelling districts. All uses permitted in the RM-2,500 or the RM-1,000 Districts are also permitted in this district.	Non-Coastal and Coastal Zone
Hospital-Medical HM	To permit the development of major health facilities according to standards that minimize adverse impact on adjoining residential areas, to protect major health facilities from unrelated and incompatible uses, and to reserve appropriately located areas for health facilities in order to stimulate the city's development as a major medical center. All uses permitted in the RM-2,500 or the RM-1,000 Districts are also permitted in this district.	Non-Coastal Zone Only
Neighborhood Commercial CN	To provide appropriately located areas for retail stores, offices, and personal service establishments patronized primarily by residents of the immediate area and to permit the development of neighborhood shopping centers of limited size and in locations that minimize adverse impact on adjoining residential uses. All uses permitted in the RM-2,500 or the RM-1,000 Districts are also permitted.	Non-Coastal and Coastal Zone
Planned Shopping Center Commercial CP	To provide appropriate locations for major shopping centers that provide a wide variety of goods and services drawing trade from the entire Humboldt Bay area. The CP zone is intended to provide for the development of an organized group of compatible commercial uses planned and designed as an integral unit consistent with modern standards for site planning and landscape design.	Non-Coastal and Coastal Zone
Central Commercial CC	To maintain compactness and encourage more intensive development in Humboldt County's principal business district and to maximize the efficiency of the central district by limiting or prohibiting uses that break the continuity of commercial frontage or are incompatible with an attractive pedestrian shopping area. All uses permitted in the RM-2,500 or the RM-1,000 Districts are also permitted in this district.	Non-Coastal Zone Only
Waterfront Commercial CW	To encourage upgrading of the use of strategically located sites between the central business district and Humboldt Bay by creating an environment suitable for establishments catering to tourism and to protect and maintain certain industrial uses that require waterfront locations. All uses permitted in the RM-2,500 or the RM-1,000 Districts are also permitted in this district.	Non-Coastal and Coastal Zone

District	Purpose	Coastal Zone Status
Service Commercial CS	To provide appropriately located areas for commercial uses having features that are incompatible with the purposes of other commercial districts, to permit additional development in mixed commercial areas containing both retail stores and commercial services, and to allow a wider choice of location for certain industrial uses that do not have an adverse impact on commercial services. All uses permitted in the RM-2,500 or the RM-1,000 Districts are also permitted in this district.	Non-Coastal and Coastal Zone
Limited Industrial ML	To provide locations for industries that can operate close to commercial and residential uses with minimum adverse impact and to protect light industrial and related uses from nuisances associated with heavy industrial uses.	Non-Coastal and Coastal Zone
General Industrial MG	To provide locations where industries that are incompatible with most other land uses can operate with minimum restrictions and minimum adverse effect on other uses. Large retail uses (i.e., greater than 40,000 square feet) are also allowed in this district.	Non-Coastal and Coastal Zone
Public P	To provide a procedure for the orderly establishment of public facilities, expansion of their operations, or changes in the use of lands owned by governmental agencies.	Non-Coastal and Coastal Zone
Planned Unit Development Combining (-PD)	To provide locations for well-planned developments that may deviate in certain respects from district regulations. The planned unit development is intended to allow freedom of design in order to obtain development that will be an asset to the city by equaling or surpassing the quality required by the regulations for the district with which a -PD District is combined.	Non-Coastal and Coastal Zone
Architectural Review Combining (-AR)	To preserve the historical character of certain areas as major tourist attractions reflecting the economic, social, cultural, and architectural heritage of the city, to ensure the orderly and harmonious development in the vicinity of certain public sites and buildings, and to ensure the continuation of high standards of development that have been established in certain parts of the city.	Non-Coastal and Coastal Zone
Conservation Water WC	To protect, enhance, and restore valuable fish, wildlife, and sensitive habitat areas and to provide for limited resource-dependent uses and public recreation in estuarine waters.	Coastal Zone Only
Development Water WD	To provide for port- and harbor-related uses of the estuarine waters of Humboldt Bay consistent with the City's resource protection policies.	Coastal Zone Only
Natural Resources NR	To protect, enhance, and restore environmentally sensitive habitat areas and to allow resource dependent uses consistent with the continuance of such habitat areas.	Coastal Zone Only
Coastal Agriculture AC	To protect agricultural lands, including farmed or grazed wetlands, for long-term productive agricultural and wildlife habitat uses and to ensure adequate separation between dwellings and facilities for housing animals.	Coastal Zone Only
One-Family Residential RS-12,000	To reserve appropriately located areas for family living, to protect one-family dwellings from the lack of privacy associated with multi-family dwellings, and to provide space for semipublic facilities needed to complement urban residential areas and for institutions that require a residential environment.	Coastal Zone Only
Public Facilities/Marina PF/M	To encourage, protect, maintain, and provide public commercial marina facilities at the Woodley Island Marina.	Coastal Zone Only
Coastal Dependent Industrial MC	To reserve and protect parcels adjacent to the sea for coastal-related uses, to provide for coastal-dependent energy and industrial uses, to protect areas appropriate for industrial uses from intrusion by dwellings and other inharmonious uses, and to provide opportunities for certain types of industrial plants to concentrate on mutually beneficial relationships to each other.	Coastal Zone Only
Source: City of Eureka		

Table 1-4 summarizes development standards for zoning districts in Eureka.

TABLE 1-4							
DEVELOPMENT STANDARDS							
Zoning Ordinance							
Zoning District	Minimum Lot Area per Dwelling	Allowable FAR	Maximum Height	Minimum Front Yard Setback	Minimum Rear Yard Setback	Combined Side yard Setback	Second Units Allowed
A	5 acres	n/a	35 ft.	30 ft.	30 ft.	30 ft.	no
RS-6,000	6,000 sf.	50%	35 ft.	15 ft.	25 ft.	10 ft.	yes
RM-2,500	2,500 sf.	50%	35 ft.	15 ft.	20 ft.	10 ft.	no
RM-1,000	6,000 sf. per 4 units plus 1,000 sf. per each additional unit	100%	75 ft.	15 ft.	20 ft.	10 ft.	no
OR	1,000 sf.	100%	100 ft.	15 ft. ¹	20 ft. ¹	10 ft. ¹	no
HM	6,000 sf. per 4 units plus 1,000 sf. per each additional unit	100%	25 ft.	15 ft.	20 ft.	10 ft.	no
CN	n/a	200%	35 ft.	n/a	n/a	n/a	no
CP	10 acres	35%	35 ft.	50 ft.	50 ft.	50 ft.	no
CC	n/a	500%	100 ft.	n/a	n/a	n/a	no
CW	n/a	250%	100 ft.	n/a	n/a	n/a	no
CS	n/a	120%	35 ft.	n/a	n/a	n/a	no
ML	6,000 sf.	120%	35 ft.	10 ft.	n/a	n/a	no
MG	6,000 sf.	200%	100 ft.	10 ft.	n/a	n/a	no
P	3 acres	n/a	35 ft.	30 ft.	30 ft.	30 ft.	no
WC ²	n/a	n/a	n/a	n/a	n/a	n/a	n/a
WD ²	n/a	n/a	n/a	n/a	n/a	n/a	n/a
NR ²	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AC ²	5 acres	n/a	35 ft.	30 ft.	30 ft.	30 ft.	no
RS-12,000 ²	12,000 sf.	50%	35 ft.	20 ft.	10 ft.	10 ft.	yes
MC ²	6,000 sf.	200%	100 ft.	10 ft.	n/a	n/a	n/a
Notes: ¹ Applies only to ground floor residential							
² Coastal Zone only.							
Source: City of Eureka							

As Table 1-5 indicates, over 35 percent (i.e., 2,130 acres) of the land in the city is zoned for residential use. Of this, 77 percent (i.e., 1,639 acre) is zoned for single family residential (RS-6,000 or RS-6,000-PD) use. Commercial and office zoning occupies about 11 percent (i.e., 659 acres) of the city's land; industrial zoning occupies about 5 percent (i.e., 292 acres) of the city's land; and public zoning occupies about 12 percent (i.e., 714 acres) of the city's land. The remaining 37 percent of land area (i.e., 2,270 acres) is occupied by a combination of natural resources and agricultural zoning and land devoted to roads and other rights-of-way. There are approximately 4,412 acres of water area in the incorporated area.

TABLE 1-5
ACREAGE BY ZONING CATEGORY
City of Eureka
1993

Zoning Category	Acreage	Percentage of Total
AC/A	519	8.6
CC/CC-AR	29	0.5
CN	32	0.5
CP	70	1.2
CS/CS-AR	322	5.3
CW	87	1.4
HM	61	1.0
MC	150	2.5
MG	105	1.7
ML	37	0.6
NR	751	12.4
OR/OR-AR	58	1.0
P	696	11.5
PF-M	18	0.3
RM-1000/RM-1000-AR	247	4.1
RM-2500/RM-2500-AR	219	3.6
RS-12000	25	0.4
RS-6000/RS-6000-PD	1,639	27.0
[Roads and rights-of-way/misc]	1,000	16.5
TOTAL (Land Area Only)	6,065	100.0
WC	3,414	78.2
WD	998	21.8
TOTAL (Water Area Only)	4,412	100.0
GRAND TOTAL	10,477	N/A
Source: City of Eureka; Mintier & Associates		

ANNEXATION HISTORY

Since its incorporation in 1850, the City of Eureka has grown from 895 acres to 10,477 acres. Since 1977, the City of Eureka has completed six annexations totaling approximately 750 acres. Table 1-6 lists annexations since 1850, and Figure 1-6 depicts the location of each of these annexations.

TABLE 1-6				
ANNEXATION HISTORY				
1850 to 1993				
Map Number	Name of Annexation	Acres	Cumulative Total	Year
1	n/a	895.3 acres	895.3 acres	1850
2	(no name associated)	3,052.5 acres	3,947.8 acres	1895
3	Peterson Annexation	0.7 acres	3,948.5 acres	1955
4	First Annexation	19.1 acres	3,967.6 acres	1955
5	East Shore Highway Annexation	2,357.0 acres	6,324.6 acres	1956
6	Barnum Ranch Annexation	59.7 acres	6,384.3 acres	1956
7	Campton-Excelsior Annexation	628.9 acres	7,013.2 acres	1956
8	Gunther Island Tideland Annexation	2,574.6 acres	9,587.8 acres	1970
9	South Broadway Annexation No. 1	113.4 acres	9,701.2 acres	1971
10	Indianola Annexation No. 1	22.1 acres	9,723.3 acres	1971
11	Harrison Ave. Annexation No. 1	1.5 acres	9,724.8 acres	1975
12	Indianola Annexation No. 4	3.4 acres	9,728.2 acres	1976
13	South Broadway Annexation No. 2	400.0 acres	10,128.2 acres	1977
14	South Broadway Annexation No. 3	29.9 acres	10,158.1 acres	1979
15	South Broadway Annexation No. 4	100.0 acres	10,258.1 acres	1982
16	South Broadway Annexation No. 5	89.0 acres	10,347.1 acres	1984
17	South Broadway Annexation No. 6	130.0 acres	10,477.1 acres	1985
18	Gibb Annexation	0.2 acres	10,477.3 acres	1988

Source: City of Eureka, J. Laurence Mintier & Associates

LAFCO AND SPHERE OF INFLUENCE

In 1985, the various state laws regulating city and special district organization and annexations were consolidated in the Cortese-Knox Local Government Reorganization Act (*Government Code* §56000 *et seq.*).

The 1963 Knox-Nisbet Act, which was superseded by Cortese-Knox, created local agency formation commissions (LAFCOs) in each county in California to regulate the organization and extension of services provided by cities and special districts. The Act declares that "among the purposes of the commission are the discouragement of urban sprawl and encouragement of the orderly formation and development of local agencies based upon local conditions and circumstances. One of the objects of the commission is to make studies and to obtain and furnish information which will contribute to the logical and reasonable development of local agencies in each county and to shape the development of local agencies so as to advantageously provide for the present and future needs of each county and its communities" (*Government Code* §56301). In meeting these responsibilities, each LAFCO is required "to review and approve or disapprove, with or without amendment, wholly, partially, or conditionally, proposals for changes of organization or reorganization" (*Government Code* §56375 (a)).

According to Section 56021 of the *Government Code*, "change of organization" means any of the following:

- A city incorporation
- A district formation
- An annexation to, or detachment from, a city or district
- A disincorporation of a city
- A district dissolution
- A consolidation of cities or special districts
- A merger or establishment of a subsidiary district

The special districts that fall under LAFCO jurisdiction are defined in *Government Code* Section 56036. School districts and redevelopment agencies, among others, are excluded within this definition and are, therefore, not subject to LAFCO review.

In addition to the regulatory responsibilities of LAFCO, the commission is empowered to initiate and to make studies of existing governmental agencies. These studies include, but are not limited to, inventorying local agencies and determining their maximum service areas and service capabilities.

As the basis in part for making decisions about organizational changes and annexations, LAFCO must adopt a sphere of influence for each local agency subject to LAFCO regulation. The Cortese-Knox Act defines a sphere of influence as "a plan for the probable ultimate physical boundaries and service area of a local agency" (*Government Code* §56076). In practice, "ultimate" is typically defined as 20 years. Under *Government Code* Section 56080, this can include the identification of an "urban service area" which identifies an area within a city's sphere of influence which is served by urban facilities, utilities, and services, or which is proposed to be served during the first five years of an adopted capital improvement program. The urban service area boundary shall be adopted by the LAFCO in cooperation with the affected city (*Government Code* §56080). Annexations by the affected city of land which falls within an identified "urban service area boundary" may not be denied by the LAFCO which adopts the boundaries.

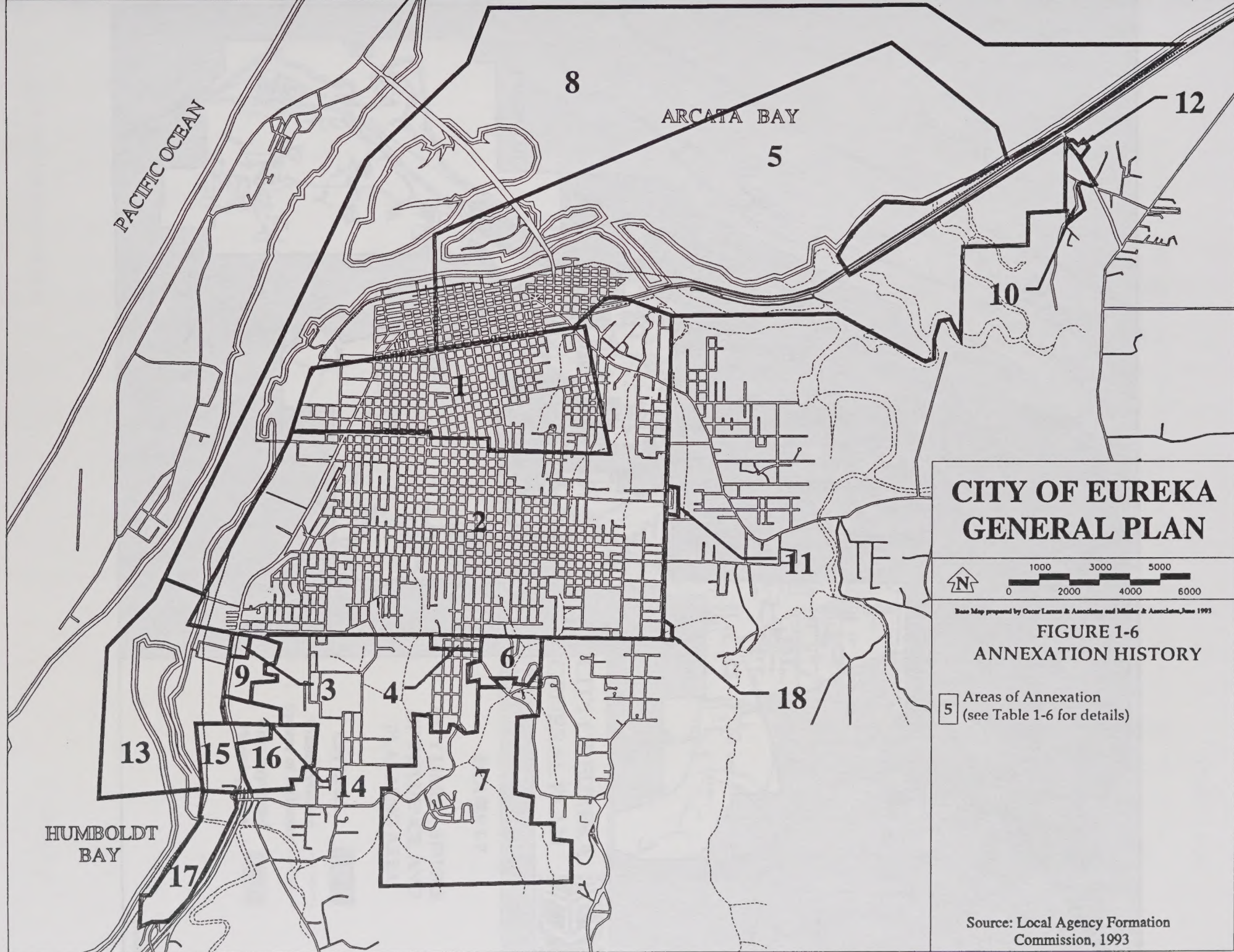
In determining the sphere of influence for each local agency, the LAFCO must consider and prepare a written statement of its determinations with respect to each of the following:

- The present and planned land uses in the area, including agricultural and open space lands
- The present and probable need for public facilities and services in the area
- The present capacity of public facilities and the adequacy of public services which the agency provides or is authorized to provide
- The existence of any social or economic communities of interest in the area if the commission determines that they are relevant to the agency (*Government Code* §56425)

Once these spheres are adopted, LAFCO decisions must be consistent with applicable spheres (*Government Code* §56375.5). This means that LAFCO may not approve city annexations outside the adopted sphere of influence for a city. Figure 1-7 shows Eureka's Sphere of Influence.

COUNTY LAND USE PLANS AND REGULATIONS

Land use in areas within the General Plan Planning Area but outside the Eureka city limits is governed by the Humboldt County General Plan. Volume I of the Humboldt County General Plan is a framework plan that establishes countywide goals, policies, and standards for development. Volume I also establishes goals, policies, and standards for rural areas of the county. With the exception of standards for modifying the urban development boundary to include urban expansion area, all relevant countywide land use policies have been incorporated into the more focused plans contained in Volume II of the General Plan. Standards for modifying the urban expansion boundary include the following (from Section 2634):



PACIFIC OCEAN

ARCATA BAY

HUMBOLDT
BAY

CITY OF EUREKA GENERAL PLAN



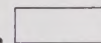
FIGURE 1-7

CITY LIMITS, SPHERE OF INFLUENCE, AND PLANNING AREA

City Limits



Unincorporated
Sphere of Influence



Unincorporated
Planning Area



5. *To determine whether it is feasible to extend urban level development into the urban expansion area, the following criteria shall be used.*
 - A. *The Planning Commission finds that the amount of land available within the urban development area for urban uses is insufficient to maintain an open and competitive development market; and,*
 - B. *Public service systems have current capacity to serve the proposed addition, if other systems are not available.*
6. *Removing lands from the urban expansion area and adding them to the urban development area consists of modifying the urban development boundary to include the new addition. The addition should be adjacent to the existing urban development area and must assist in the completion of an orderly and contiguous extension of urban development.*

Volume II of the Humboldt County General Plan consists of numerous plans for urban areas of the county and for areas of the county within the Coastal Zone. Three plans contained in Volume II of the Humboldt County General Plan are applicable to the Eureka General Plan Planning Area. These are the Humboldt Bay Area Plan, the Eureka Community Plan, and the Freshwater Community Plan. Figure 1-8 shows the area covered by these three plans and the distribution of land uses proposed in the three plans.

EUREKA COMMUNITY PLAN

The Eureka Community Plan, which was adopted in 1994, covers approximately 14.5 square miles of land area, extending from the Eureka city limits south to include College of the Redwoods and east to Ryan Creek. Existing land use includes residential, commercial, industrial, and resource-related uses. Approximately 12.5 square miles of the Eureka Community Plan area lie within the Eureka General Plan Planning Area. Approximately 45 percent of the entire Eureka Community Plan area is designated as Timber Production Zone (TPZ), 18 percent is prime agricultural land, and 37 percent is devoted to rural and urban use. Most residential use in the County's Eureka Community Plan Area is also contained in the City's General Plan Planning Area in five urban areas: West Myrtle town, Pine Hill, Cutten, Ridgewood Heights, and Humboldt Hill. There are currently (1993) approximately 3,830 dwelling units and 10,800 persons in the Eureka Community Plan area. Land use designations in the Eureka Community Plan are geographically depicted in Figure 1-8 and summarized in Table 1-7.

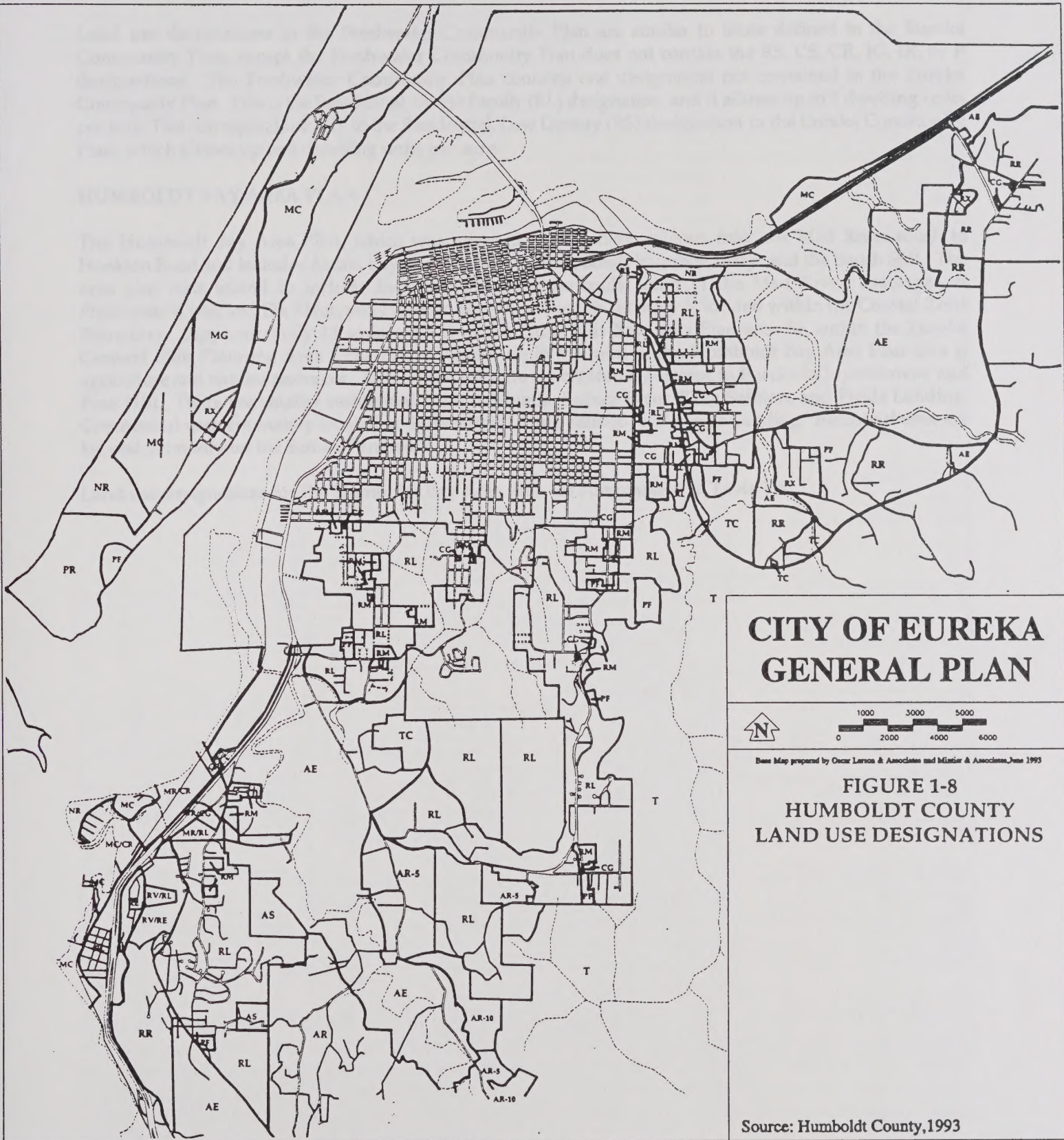
TABLE 1-7
LAND USE DESIGNATIONS
Eureka Community Plan
1993

Designations	Purpose	Maximum Density
Timber Production (T)	The growing, harvesting, and production of timber.	1 dwelling unit per 20 acres
Agricultural Exclusive (AE)	To provide areas for the production of food and food-related products.	1 dwelling unit per 20 acres
Agricultural Grazing (AG)	To maintain the long-term viability and integrity of the county's grazing lands. These areas are typically not prime agricultural land but are in proximity to prime agricultural areas.	1 dwelling unit per 20 acres
Agricultural Lands (AL)	To provide for limited resource production under intensive management in remote, steep, and high natural hazard areas.	1 dwelling unit per 20 acres
Agricultural Rural (AR)	To provide for limited resource production under intensive management in low-slope areas located away from community centers.	1 dwelling unit per 5 acres
Agricultural Suburban (AS)	To provide for very low-density residential use in areas adjacent to community centers and which may eventually require urban services.	1 dwelling unit per 2 ½ acres
Residential, Low Density (RL)	To provide for low-density residential use in urban areas of the county where topography, access, and the availability of public services allow.	6 dwelling units per acre
Residential, Multiple Family (RM)	To provide for multiple family residential use in urban areas of the county where topography, access, and the availability of public services allow.	16 dwelling units per acre
Commercial, General (CG)	To provide for retail sales and service uses designed to meet local, neighborhood, and regional needs.	n/a
Commercial Services (CS)	To provide for heavy commercial uses and light industrial uses.	n/a
Commercial Recreation (CR)	To provide for commercial recreation uses designed to meet local and tourist needs.	n/a
Industrial, General (IG)	To provide for manufacturing uses in urban areas of the county.	n/a
Industrial, Resource Related (IR)	To provide for agricultural and timber products processing in rural areas of the county.	n/a
Public Facilities (PF)	To provide for public and quasi-public uses to serve the public health, safety, convenience, and welfare.	n/a
Public Lands (P)	To provide for public stewardship of sensitive lands and water, the use of which serve a public need.	n/a

Source: *Eureka Community Plan*, 1994, Humboldt County Planning Department

FRESHWATER COMMUNITY PLAN

The Freshwater Community Plan, which was adopted in May 1985, contains approximately 14.0 square miles of land area, extending from Ryan Creek east to include Freshwater and Kneeland and from the Coastal Zone Boundary south to Guptil Gulch. Approximately 5 square miles of the Freshwater Community Plan area lie within the Eureka General Plan Planning Area. The primary land use in this part of the Freshwater Community Plan area is commercial timber production, and most timber production land is designated as Timber Production Zone (TPZ). Residential uses in the Eureka General Plan Planning Area part of the



CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Mixter & Associates, June 1993

**FIGURE 1-8
HUMBOLDT COUNTY
LAND USE DESIGNATIONS**

Source: Humboldt County, 1993

Freshwater Community Plan area are concentrated near Myrtle Avenue and the Cumming Road area. Commercial uses are limited to the Indianola area.

Land use designations in the Freshwater Community Plan are similar to those defined in the Eureka Community Plan, except the Freshwater Community Plan does not contain the RS, CS, CR, IG, IR, or P designations. The Freshwater Community Plan contains one designation not contained in the Eureka Community Plan. This is the Residential, Single Family (RL) designation, and it allows up to 7 dwelling units per acre. This corresponds closely to the Residential, Low Density (RS) designation in the Eureka Community Plan, which allows up to 6 dwelling units per acre.

HUMBOLDT BAY AREA PLAN

The Humboldt Bay Area Plan, which was adopted in July 1989, extends from the Mad River south to Hookton Road and includes Arcata Bay, the Samoa Peninsula, South Humboldt Bay, and the South Spit. The area also runs inland to include the flood-prone bottomlands south of the Mad River, drainages at Freshwater Creek and Elk River, and Hookton Slough. All of this territory is located within the Coastal Zone Boundary. Approximately 13 square miles of the Humboldt Bay Area Plan area lie within the Eureka General Plan Planning Area. The primary land use in this part of the Humboldt Bay Area Plan area is agriculture and natural resources. Residential uses are concentrated adjacent to Eureka in Myrtle town and Pine Hill. There are smaller residential areas in Manila, Spruce Point, King Salmon, and Fields Landing. Commercial uses are mainly located at Spruce Point, King Salmon, and Fields Landing. Industrial uses are located primarily on the Samoa Peninsula.

Land use designations for the Humboldt Bay Area Plan are summarized in Table 1-8.

Designation	Area (Acres)	Percentage of Total Area	Notes
Residential, Single Family (RL)	1,200	9.2%	Allows up to 7 dwelling units per acre.
Residential, Low Density (RS)	1,800	13.8%	Allows up to 6 dwelling units per acre.
Residential, Medium Density (RM)	2,400	18.5%	Allows up to 4 dwelling units per acre.
Residential, High Density (RH)	3,600	27.7%	Allows up to 2 dwelling units per acre.
Commercial (C)	1,200	9.2%	Includes C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8, C-9, C-10, C-11, C-12, C-13, C-14, C-15, C-16, C-17, C-18, C-19, C-20, C-21, C-22, C-23, C-24, C-25, C-26, C-27, C-28, C-29, C-30, C-31, C-32, C-33, C-34, C-35, C-36, C-37, C-38, C-39, C-40, C-41, C-42, C-43, C-44, C-45, C-46, C-47, C-48, C-49, C-50, C-51, C-52, C-53, C-54, C-55, C-56, C-57, C-58, C-59, C-60, C-61, C-62, C-63, C-64, C-65, C-66, C-67, C-68, C-69, C-70, C-71, C-72, C-73, C-74, C-75, C-76, C-77, C-78, C-79, C-80, C-81, C-82, C-83, C-84, C-85, C-86, C-87, C-88, C-89, C-90, C-91, C-92, C-93, C-94, C-95, C-96, C-97, C-98, C-99, C-100.
Industrial (I)	1,200	9.2%	Includes I-1, I-2, I-3, I-4, I-5, I-6, I-7, I-8, I-9, I-10, I-11, I-12, I-13, I-14, I-15, I-16, I-17, I-18, I-19, I-20, I-21, I-22, I-23, I-24, I-25, I-26, I-27, I-28, I-29, I-30, I-31, I-32, I-33, I-34, I-35, I-36, I-37, I-38, I-39, I-40, I-41, I-42, I-43, I-44, I-45, I-46, I-47, I-48, I-49, I-50, I-51, I-52, I-53, I-54, I-55, I-56, I-57, I-58, I-59, I-60, I-61, I-62, I-63, I-64, I-65, I-66, I-67, I-68, I-69, I-70, I-71, I-72, I-73, I-74, I-75, I-76, I-77, I-78, I-79, I-80, I-81, I-82, I-83, I-84, I-85, I-86, I-87, I-88, I-89, I-90, I-91, I-92, I-93, I-94, I-95, I-96, I-97, I-98, I-99, I-100.
Office (O)	1,200	9.2%	Includes O-1, O-2, O-3, O-4, O-5, O-6, O-7, O-8, O-9, O-10, O-11, O-12, O-13, O-14, O-15, O-16, O-17, O-18, O-19, O-20, O-21, O-22, O-23, O-24, O-25, O-26, O-27, O-28, O-29, O-30, O-31, O-32, O-33, O-34, O-35, O-36, O-37, O-38, O-39, O-40, O-41, O-42, O-43, O-44, O-45, O-46, O-47, O-48, O-49, O-50, O-51, O-52, O-53, O-54, O-55, O-56, O-57, O-58, O-59, O-60, O-61, O-62, O-63, O-64, O-65, O-66, O-67, O-68, O-69, O-70, O-71, O-72, O-73, O-74, O-75, O-76, O-77, O-78, O-79, O-80, O-81, O-82, O-83, O-84, O-85, O-86, O-87, O-88, O-89, O-90, O-91, O-92, O-93, O-94, O-95, O-96, O-97, O-98, O-99, O-100.
Public (P)	1,200	9.2%	Includes P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, P-12, P-13, P-14, P-15, P-16, P-17, P-18, P-19, P-20, P-21, P-22, P-23, P-24, P-25, P-26, P-27, P-28, P-29, P-30, P-31, P-32, P-33, P-34, P-35, P-36, P-37, P-38, P-39, P-40, P-41, P-42, P-43, P-44, P-45, P-46, P-47, P-48, P-49, P-50, P-51, P-52, P-53, P-54, P-55, P-56, P-57, P-58, P-59, P-60, P-61, P-62, P-63, P-64, P-65, P-66, P-67, P-68, P-69, P-70, P-71, P-72, P-73, P-74, P-75, P-76, P-77, P-78, P-79, P-80, P-81, P-82, P-83, P-84, P-85, P-86, P-87, P-88, P-89, P-90, P-91, P-92, P-93, P-94, P-95, P-96, P-97, P-98, P-99, P-100.
Open Space (OS)	1,200	9.2%	Includes OS-1, OS-2, OS-3, OS-4, OS-5, OS-6, OS-7, OS-8, OS-9, OS-10, OS-11, OS-12, OS-13, OS-14, OS-15, OS-16, OS-17, OS-18, OS-19, OS-20, OS-21, OS-22, OS-23, OS-24, OS-25, OS-26, OS-27, OS-28, OS-29, OS-30, OS-31, OS-32, OS-33, OS-34, OS-35, OS-36, OS-37, OS-38, OS-39, OS-40, OS-41, OS-42, OS-43, OS-44, OS-45, OS-46, OS-47, OS-48, OS-49, OS-50, OS-51, OS-52, OS-53, OS-54, OS-55, OS-56, OS-57, OS-58, OS-59, OS-60, OS-61, OS-62, OS-63, OS-64, OS-65, OS-66, OS-67, OS-68, OS-69, OS-70, OS-71, OS-72, OS-73, OS-74, OS-75, OS-76, OS-77, OS-78, OS-79, OS-80, OS-81, OS-82, OS-83, OS-84, OS-85, OS-86, OS-87, OS-88, OS-89, OS-90, OS-91, OS-92, OS-93, OS-94, OS-95, OS-96, OS-97, OS-98, OS-99, OS-100.
Water (W)	1,200	9.2%	Includes W-1, W-2, W-3, W-4, W-5, W-6, W-7, W-8, W-9, W-10, W-11, W-12, W-13, W-14, W-15, W-16, W-17, W-18, W-19, W-20, W-21, W-22, W-23, W-24, W-25, W-26, W-27, W-28, W-29, W-30, W-31, W-32, W-33, W-34, W-35, W-36, W-37, W-38, W-39, W-40, W-41, W-42, W-43, W-44, W-45, W-46, W-47, W-48, W-49, W-50, W-51, W-52, W-53, W-54, W-55, W-56, W-57, W-58, W-59, W-60, W-61, W-62, W-63, W-64, W-65, W-66, W-67, W-68, W-69, W-70, W-71, W-72, W-73, W-74, W-75, W-76, W-77, W-78, W-79, W-80, W-81, W-82, W-83, W-84, W-85, W-86, W-87, W-88, W-89, W-90, W-91, W-92, W-93, W-94, W-95, W-96, W-97, W-98, W-99, W-100.
Transportation (T)	1,200	9.2%	Includes T-1, T-2, T-3, T-4, T-5, T-6, T-7, T-8, T-9, T-10, T-11, T-12, T-13, T-14, T-15, T-16, T-17, T-18, T-19, T-20, T-21, T-22, T-23, T-24, T-25, T-26, T-27, T-28, T-29, T-30, T-31, T-32, T-33, T-34, T-35, T-36, T-37, T-38, T-39, T-40, T-41, T-42, T-43, T-44, T-45, T-46, T-47, T-48, T-49, T-50, T-51, T-52, T-53, T-54, T-55, T-56, T-57, T-58, T-59, T-60, T-61, T-62, T-63, T-64, T-65, T-66, T-67, T-68, T-69, T-70, T-71, T-72, T-73, T-74, T-75, T-76, T-77, T-78, T-79, T-80, T-81, T-82, T-83, T-84, T-85, T-86, T-87, T-88, T-89, T-90, T-91, T-92, T-93, T-94, T-95, T-96, T-97, T-98, T-99, T-100.
Utilities (U)	1,200	9.2%	Includes U-1, U-2, U-3, U-4, U-5, U-6, U-7, U-8, U-9, U-10, U-11, U-12, U-13, U-14, U-15, U-16, U-17, U-18, U-19, U-20, U-21, U-22, U-23, U-24, U-25, U-26, U-27, U-28, U-29, U-30, U-31, U-32, U-33, U-34, U-35, U-36, U-37, U-38, U-39, U-40, U-41, U-42, U-43, U-44, U-45, U-46, U-47, U-48, U-49, U-50, U-51, U-52, U-53, U-54, U-55, U-56, U-57, U-58, U-59, U-60, U-61, U-62, U-63, U-64, U-65, U-66, U-67, U-68, U-69, U-70, U-71, U-72, U-73, U-74, U-75, U-76, U-77, U-78, U-79, U-80, U-81, U-82, U-83, U-84, U-85, U-86, U-87, U-88, U-89, U-90, U-91, U-92, U-93, U-94, U-95, U-96, U-97, U-98, U-99, U-100.
Other (Oth)	1,200	9.2%	Includes Oth-1, Oth-2, Oth-3, Oth-4, Oth-5, Oth-6, Oth-7, Oth-8, Oth-9, Oth-10, Oth-11, Oth-12, Oth-13, Oth-14, Oth-15, Oth-16, Oth-17, Oth-18, Oth-19, Oth-20, Oth-21, Oth-22, Oth-23, Oth-24, Oth-25, Oth-26, Oth-27, Oth-28, Oth-29, Oth-30, Oth-31, Oth-32, Oth-33, Oth-34, Oth-35, Oth-36, Oth-37, Oth-38, Oth-39, Oth-40, Oth-41, Oth-42, Oth-43, Oth-44, Oth-45, Oth-46, Oth-47, Oth-48, Oth-49, Oth-50, Oth-51, Oth-52, Oth-53, Oth-54, Oth-55, Oth-56, Oth-57, Oth-58, Oth-59, Oth-60, Oth-61, Oth-62, Oth-63, Oth-64, Oth-65, Oth-66, Oth-67, Oth-68, Oth-69, Oth-70, Oth-71, Oth-72, Oth-73, Oth-74, Oth-75, Oth-76, Oth-77, Oth-78, Oth-79, Oth-80, Oth-81, Oth-82, Oth-83, Oth-84, Oth-85, Oth-86, Oth-87, Oth-88, Oth-89, Oth-90, Oth-91, Oth-92, Oth-93, Oth-94, Oth-95, Oth-96, Oth-97, Oth-98, Oth-99, Oth-100.

TABLE 1-8
LAND USE DESIGNATIONS
Humboldt Bay Area Plan
1989

Designations	Purpose	Maximum Density
Residential, High Density (RH)	To provide for high-density, multiple family residential use in urban areas of the county.	There is no stated density standard.
Residential, Medium Density (RM)	To provide for duplex and other moderate-density residential uses in urban areas of the county.	30 dwelling units per acre
Residential, Low Density (RL)	To provide for low-density, single family residential use in urban areas of the county.	7 dwelling units per acre.
Residential Estates (RE)	To provide for very low-density, single family residential use in urban areas of the county.	2 dwelling units per acre
Urban Reserve (RV)	To provide open space uses, including timber production and agricultural uses, in urban areas that need protection from premature subdivision and development.	n/a
Commercial General (CG)	(See the description for the CG designation provided above for the Eureka Community Plan designations)	n/a
Commercial Recreational (CR)	(See the description for the CR designation provided above for the Eureka Community Plan designations)	n/a
Industrial, General (MG)	(See the description for the CR designation provided above for the Eureka Community Plan designations)	n/a
Industrial, Coastal Dependent (MC)	To provide for industrial uses that depend on, or relate to, the harbor.	n/a
Resource Dependent (MR)	The purpose of the Resource Dependent designation is to provide for resource-dependent activities in coastal wetland areas and to provide for the development of upland areas consistent with resource protection and enhancement.	n/a
Public Facility (PF)	(See the description for the PF designation provided above for the Eureka Community Plan designations)	n/a
Public Recreation (PR)	The purpose of the Public Recreation designation is to provide for recreational development or resource protection on suitable public lands.	n/a
Agricultural, General (AG)	To provide for agricultural production uses in urban areas of the county.	1 dwelling unit per 2 ½ acres
Residential, Exurban (RX)	To provide for the development of low-density residential uses in rural community neighborhoods.	Development densities vary for specific geographic areas
Rural Residential (RR)	To provide for low-density residential use in areas not suitable for rural community neighborhood development.	Development densities vary for specific geographic areas
Agricultural Exclusive (AE)	(See the description for the AE designation provided above for the Eureka Community Plan designations)	n/a
Agricultural Exclusive, Grazing Lands (AEG)	(See the description for the AE designation provided above for the Eureka Community Plan designations)	n/a
Coastal Commercial Timberland (TC)	To provide areas for the growing, harvesting, and production of timber.	1 dwelling unit per 40 acres.
Natural Resources (NR)	(See the description for the AE designation provided above for the Eureka Community Plan designations)	n/a
Commercial Recreation (CR)	(See the description for the AE designation provided above for the Eureka Community Plan designations)	n/a

Source: Humboldt County Planning Department

OTHER LOCAL PLANS AFFECTING EUREKA

MURRAY FIELD AIRPORT LAND USE COMMISSION PLAN

Under various provisions of state law, cities and counties are required to either bring their general plans and any specific plans into compliance with the adopted County Airport Land Use Commission (ALUC) plan for the territory around designated airports or make specific findings. The purpose of the airport land use plan and the consistency requirement is to eliminate or minimize development around airports that would be subject to significant levels of aircraft noise or would pose a safety hazard to aircraft or occupants of the development in the event of a plane crash.

In January 1993, the Humboldt County ALUC adopted an Airport Land Use Commission Plan for each public use airport operated by Humboldt County. This included a plan for Murray Field, which is the only County airport in the Eureka General Plan Planning Area. As part of the plan, the ALUC established compatibility zone boundaries around each airport and developed a comprehensive land use plan and compatibility policies for areas within the compatibility zone boundaries. The ALUC plan divides the compatibility zones into five areas: 1) Runway Protection Zone or within Building Restriction Line; 2) Approach/Departure Zone and Adjacent to Runway; 3) Extended Approach/Departure Zone; 4) Common Traffic Pattern; and 5) Other Airport Environs. Most land adjacent to Murray Field is natural resource area and is, therefore, undevelopable. Table 1-9 shows compatibility criteria for Murray Field.

TABLE 1-9				
COMPATIBILITY CRITERIA Humboldt County Airports				
Zone	Maximum Densities		Required Open Land	Prohibited Uses
	Residential	Other Uses		
A	0	10	All Remaining	▪ All structures except ones with location set by aeronautical function ▪ Assemblages of people ▪ Objects exceeding height limit ▪ Hazards to flight
B1/B2	.1 / 5	60	30%	▪ Schools, day care centers, libraries ▪ Hospitals, nursing homes ▪ Highly noise-sensitive uses ▪ Storage of highly flammable materials ▪ Hazards to flight
C	4	150	15%	▪ Schools ▪ Hospitals, nursing homes ▪ Hazards to flight
D	No Limit	No Limit	No Requirement	▪ Hazards to flight
Source: Humboldt County				

EUREKA MUNICIPAL AIRPORT

In addition to Murray Field, the City of Eureka owns a small air strip on the Samoa Peninsula called the Eureka Municipal Airport. Eureka Municipal Airport is currently defunct, except for occasional use by small private aircraft operated in conjunction with neighboring industrial uses on the Samoa Peninsula. There is a substantial amount of vacant industrial land adjacent to Eureka Municipal Airport. Land development adjacent to Eureka Municipal Airport could, however, be restricted by future noise and building height limitations associated with any airport expansion.

Figure 1-9 shows Murray Field and Eureka Municipal Airport.

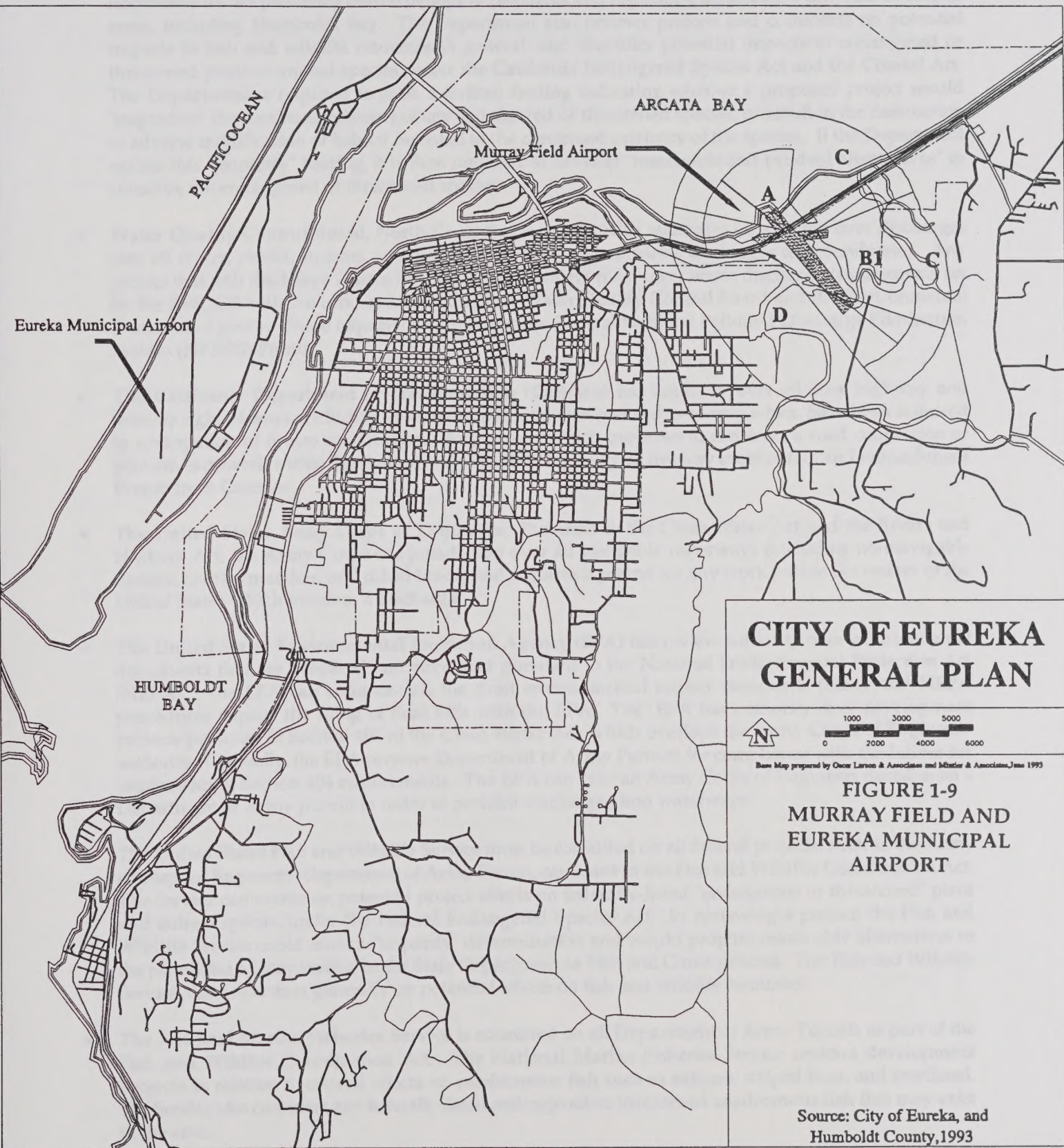
HUMBOLDT BAY HARBOR RECREATION AND CONSERVATION DISTRICT

The Humboldt Bay Harbor Recreation and Conservation District is a special district that was formed by the people of Humboldt County in 1973 to oversee the development of Humboldt Bay, to regulate and manage the use of tidelands and lands underlying inland navigable waterways of Humboldt Bay, to promote commerce in Humboldt Bay, and to protect the natural resources of the area. The District has jurisdiction over all tide, submerged, and other lands in the district and over Humboldt Bay including all rivers, sloughs, estuaries, and areas tributary to Humboldt Bay.

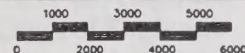
REGIONAL, STATE, AND FEDERAL REGULATORY AGENCIES

The following describes the authority or function of those regional, state, and federal agencies that will or may play a role in the future development of Eureka.

- **The North Coast Unified Air Quality Management District (AQMD)** is responsible for granting two types of permits that pertain to land use. The first, the Authority to Construct, is required for any proposal to construct, modify, or operate a facility or equipment that will emit pollutants from a stationary source into the atmosphere. The second, the Permit to Operate, must be obtained from the AQMD to ensure compliance with requirements implemented with the Authority to Construct. The Permit to Construct includes a renewal requirement that creates an ongoing monitoring program.
- **The California Coastal Commission** is responsible for certifying local coastal programs and amendments made to local coastal programs by the governing jurisdiction. With certain exceptions, development within the Coastal Zone is subject to a coastal development permit issued either by a local government pursuant to a certified LCP or, where there is no certified LCP, by the Coastal Commission pursuant to the Coastal Act. Local government permit decisions regarding specific types of projects may be appealed to the commission. Regardless of the local jurisdiction's LCP status, the commission retains permanent jurisdiction over development on coastal zone tidelands, submerged lands, and public trust lands.
- **The California Coastal Conservancy** is an independent state agency with a governing board appointed by the Governor and the State Legislature. The Coastal Conservancy was created to resolve land use conflicts on the coast; to help implement local coastal plans; to increase and improve public access to the California Coast; to protect and restore coastal wetlands, streams, and watersheds; to acquire and hold land for purposes within the Coastal Act; to restore urban waterfronts for public use and coastal-dependent activities; and to protect agricultural lands.
- **The California State Lands Commission** is responsible for granting two types of permits that pertain to land use. The first, the Dredging Permit, is required for any proposal to dredge lands under the jurisdiction of the State Lands Commission. The second, the Marine Salvage Permit, is required for any proposal to conduct salvage operations on submerged lands under the jurisdiction of the State Lands Commission. In addition to these two permits, the State Lands Commission is responsible for regulating all marine oil terminals through its Marine Facilities Program and for issuing Land Use Leases and otherwise regulating the use of tidelands and submerged lands under its jurisdiction to ensure that proposed uses of these lands are consistent with a public purpose.
- **The California Department of Fish and Game** has jurisdiction over all "waters of the state," including any lakes, streams, or rivers containing fish or wildlife resources. The Department of Fish and Game has authority over two permitting processes. Streambed Alteration Agreements are required for projects which alter the flow of any lake, stream, or river in the state. Suction Dredging Permits are required for



CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Munster & Associates, June 1993

**FIGURE 1-9
MURRAY FIELD AND
EUREKA MUNICIPAL
AIRPORT**

Source: City of Eureka, and
Humboldt County, 1993

projects involving suction or vacuum dredging activities in state waterways. The department is also responsible for the protecting coastal biological resources and regulating aquaculture activities in coastal areas, including Humboldt Bay. The Department also reviews projects and comments on potential impacts to fish and wildlife resources in general, and identifies potential impacts to endangered or threatened plant or animal species under the California Endangered Species Act and the Coastal Act. The Department is required to issue a written finding indicating whether a proposed project would "jeopardize" the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of habitat essential to the continued existence of the species. If the Department makes this "jeopardy" finding, it is then required to develop "reasonable and prudent alternatives" to conserve the endangered or threatened species.

- **Water Quality Control Board, North Coast Region (RWQCB)** maintains jurisdiction over discharges into all rivers, creeks, streams, and canals in the area, and regulates discharges to groundwater. Any project that will discharge wastes into any surface waters must meet waste discharge requirements set by the RWQCB with the concurrence of the State Water Quality Control Board and the Environmental Protection Agency. These requirements serve as the Federal National Pollutant Discharge Elimination System (NPDES) Permit.
- **The California Department of Transportation (Caltrans)** has authority over all state highway and freeway right-of-ways, including easements, and undeveloped rights-of-way which have been acquired in anticipation of future construction. Any project which proposes to construct a road connection or perform earthwork within the right-of-way of a state highway or freeway must obtain an Encroachment Permit from Caltrans.
- **The United States Army Corps of Engineers.** Pursuant to the Clean Water Act and the Rivers and Harbors Act, the Army Corps has jurisdiction over all navigable waterways (including nonnavigable streams, creeks, marshes, and diked lands) and requires a permit for any work within the waters of the United States which involves a discharge.
- **The United States Environmental Protection Agency (EPA)** has review authority over environmental documents that are prepared and circulated pursuant to the National Environmental Protection Act (NEPA). The EPA can comment on the draft environmental impact statements (EISs), and NEPA procedures require the filing of final EISs with the EPA. The EPA has authority over development projects pursuant to Section 404 of the Clean Water Act, which overlaps the Army Corps of Engineers' authority. Generally, the EPA reviews Department of Army Permits for compliance with guidelines for implementing Section 404 requirements. The EPA can veto an Army Corps of Engineers decision on a Department of Army permit in order to prohibit discharges into waterways.
- **The United States Fish and Wildlife Service** must be consulted on all federal projects, such as the Army of Corps of Engineers—Department of Army Permit, pursuant to the Fish and Wildlife Coordination Act. The Service comments on potential project effects on federally-listed "endangered or threatened" plant and animal species under the Federal Endangered Species Act. In reviewing a project, the Fish and Wildlife Service could issue a "jeopardy" determination and would propose reasonable alternatives to the permitting agency similar to the State Department of Fish and Game process. The Fish and Wildlife Service also comments generally on potential effects on fish and wildlife resources.
- **The National Marine Fisheries Service** is consulted on all Department of Army Permits as part of the Fish and Wildlife Coordination Act. The National Marine Fisheries Service reviews development projects in relation to overall effects on anadromous fish such as salmon, striped bass, and steelhead. The Service also considers any federally-listed endangered or threatened anadromous fish that may exist in the area.

FINDINGS

- Until adoption of the General Plan in 1997, the 1977 General Plan had been the official development guide for the City of Eureka for almost 20 years.
- There is very little developable land remaining within Eureka's city limits.
- There are approximately 46.8 square miles of land and water area in the General Plan Planning Area. The incorporated city is approximately 16 square miles in size and the unincorporated Planning Area is approximately 30.8 square miles.
- Significant parts of the Planning Area are located in the Coastal Zone. Within the City of Eureka, land use and development in the Coastal Zone is governed by the City's Local Coastal Program, which was adopted and certified in 1984, superseding the 1977 General Plan and preexisting zoning for the area.
- Over 35 percent of the land area in the incorporated city is zoned for residential use, about 11 percent is zoned for commercial and office uses, about 5 percent is zoned for industrial use, and about 12 percent is zoned for public use. There are approximately 6,200 acres of land area and 4,270 acres of water area in the incorporated city.
- The City of Eureka has completed six annexations totaling approximately 750 acres since in 1977.
- Eureka's Sphere of Influence includes unincorporated parts of Indianola, Myrtle-towne, Cutten, Pine Hill, Ridgewood Heights, Humboldt Hill, King Salmon, and Fields Landing.
- The unincorporated Planning Area is composed of three county planning areas. These are the Eureka Community Plan, the Freshwater Community Plan, and the Humboldt Bay Area Plan. Approximately 12.5 square miles of the General Plan Planning Area is located in the Eureka Community Plan area, and most of this land is zoned for timber or agricultural production. Approximately 5 square miles of the General Plan Planning Area is located in the Freshwater Community Plan area, and most of this land is zoned for timber production. Approximately 13 square miles of the General Plan Planning Area is located in the Humboldt Bay Area Plan area. Most of this area is water; most of the land in the Humboldt Bay Area Plan area is zoned for either agricultural or natural resources use.
- There are two airports in the General Plan Planning Area--Murray Field and Eureka Municipal Airport. Most land adjacent to Murray Field is natural resource area and is, therefore, undevelopable. There is a substantial amount of vacant industrial land adjacent to Eureka Municipal Airport. Land development adjacent to Eureka Municipal Airport may be restricted by future noise and height limitations associated with any airport expansion.
- In addition to the City of Eureka and Humboldt County, the Bureau of Land Management (U.S. Department of the Interior), the State Lands Commission, the Humboldt Bay Harbor Recreation and Harbor District, the California Coastal Commission, and numerous other regional, state, and federal agencies exercise some jurisdiction over parts of the General Plan Planning Area.

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CHAPTER 2

HOUSING



INTRODUCTION

The information contained in this chapter comes primarily from the U.S Census Bureau, the California Department of Finance, housing market studies prepared by Keyser Marston Associates, and other local sources.

This chapter is divided into eleven sections and one appendix. The first section profiles Eureka's housing stock and its characteristics. The second section summarizes existing housing needs, projected housing needs, and the housing needs of special groups within Eureka's population. The third section describes sites that are available within Eureka to meet the city's future housing needs and discusses the services available to support development of these sites. The fourth section discusses land use controls and governmental constraints. The fifth section discusses energy costs and conservation. The sixth section discusses non-governmental constraints on the production and availability of housing. The seventh section summarizes housing programs and activities in Eureka during the period 1984 to 1991 and evaluates implementation of Eureka's 1984 Housing Element. The eighth section describes the public participation program for the Housing Element update. The ninth section discusses Housing Element consistency with the General Plan. The tenth section is a set of findings related to housing. Finally, the eleventh section lists bibliographic references and persons consulted in the course of preparing this chapter. Appendix 2-A is a synopsis of special housing requirements.

HOUSING STOCK AND CHARACTERISTICS

INTRODUCTION

This section describes Eureka's housing stock and its characteristics, with comparisons to surrounding cities and Humboldt County.

HOUSING STOCK GROWTH AND COMPOSITION

According to the California Department of Finance (DOF), Eureka's housing stock grew at a relatively slow pace between 1980 and 1992, adding 1,148 dwelling units to its 1980 base of 10,727 dwelling units, for a compounded annual average growth rate of 0.8 percent. In the six-year period between 1985 and 1991, DOF reported an increase of 530 dwelling units. A recent (August 1992) analysis of City building permit records for the 1985 to 1991 period, however, indicates that Eureka added as few as 291 dwelling units, which is significantly less than what DOF reported and raises questions about the accuracy of DOF estimates.

Almost one-third of Eureka's housing stock is multi-family housing; this mix of housing has remained essentially the same since 1980. Table 2-1 shows housing stock composition for Eureka for 1980 through 1992.

TABLE 2-1
HOUSING STOCK COMPOSITION
Eureka
1980 through 1992

Year	Total	Single Family	Percent of Total	Multi-Family	Percent of Total	Mobile Homes	Percent of Total
1980	10,727	7,149	66.6	3,397	31.7	181	1.7
1981	10,994	7,201	65.5	3,612	32.9	181	1.6
1982	11,070	7,273	65.7	3,614	32.6	183	1.7
1983	11,156	7,345	65.8	3,627	32.5	184	1.6
1984	11,234	7,445	66.3	3,611	32.1	178	1.6
1985	11,306	7,529	66.6	3,597	31.8	180	1.6
1986	11,407	7,611	66.7	3,608	31.6	188	1.6
1987	11,483	7,695	67.0	3,599	31.3	189	1.6
1988	11,580	7,771	67.1	3,617	31.2	192	1.7
1989	11,677	7,846	67.1	3,637	31.1	194	1.7
1990	11,781	7,937	67.4	3,650	31.0	194	1.6
1991	11,836	7,947	67.1	3,695	31.2	194	1.6
1992	11,875	7,962	67.0	3,719	31.3	194	1.6

Source: California Department of Finance

With the exception of Arcata, Eureka had the highest proportion of multi-family housing of any city in Humboldt County in 1992. Table 2-2 shows comparative housing stock composition for Humboldt County cities.

TABLE 2-2
COMPARATIVE HOUSING STOCK COMPOSITION
Humboldt County Cities
1992

City	Total	Single Family	% of Total	2-4 Units	% of Total	5+ Units	% of Total	Mobile Homes	% of Total
Arcata	6,518	3,259	50.0	896	13.8	1,673	25.7	690	10.6
Blue Lake	547	362	66.2	50	9.1	56	10.2	79	14.4
Eureka	11,875	7,962	67.1	2,187	18.4	1,532	12.9	194	1.6
Ferndale	603	498	82.6	84	13.9	21	3.5	0	0.0
Fortuna	3,805	2540	66.8	582	15.3	312	8.2	371	9.8
Rio Dell	1,248	937	75.1	175	14.0	27	2.2	109	8.7
Trinidad	201	160	79.6	20	10.0	2	1.0	19	9.5

Source: California Department of Finance

In addition to standard housing units reported by DOF, there are a number of motels in Eureka that house people for extended periods. According to the City's Finance Department, there are 11 motels in Eureka that regularly report transient occupancy tax exemptions for stays in excess of 30 days. Table 2-3 lists these motels, along with the total number of units and the number of units that are being used for long-term occupancy.

TABLE 2-3
USE OF MOTELS AS RESIDENCES
Eureka
1992

Name of Motel	Address	Total Number of Units	Number of TOT-Exempt Units
Chins	4200 Broadway	14	5
Christies	1420 Fourth Street	34	11
City Center	1134 Fourth Street	76	35
Eagle House	Second at C Street	24	19
Fireside	Fifth at R Street	67	11
Flamingo	4255 South Broadway	22	7
Fort Humboldt	1503 McCullens Ave	14	9
Ranchotel	2109 Broadway	40	12
Sleepy Hollow	2331 Broadway	21	19
Super 8	1304 Fourth Street	50	5
Triangle	Fifth at Summer Street	28	27
Total		390	160

Source: City of Eureka Finance Department; Mintier & Associates

According to state law, the conversion or demolition of existing residential dwelling units within the Coastal Zone occupied by persons and families of low or moderate income shall not be authorized unless provision has been made for replacement of those units (*Government Code § 65590*). Also according to state law, the conversion or demolition of any residential structure for purposes of a nonresidential use which is not coastal dependent shall not be authorized unless the City determines that the residential use is no longer feasible. If the City makes this finding and allows conversion or demolition any residential structure, it must require replacement of any dwelling units occupied by persons and families of low or moderate income (*Government Code § 65590*). According to City Building Department records, no single family or multi-family housing units have been demolished or converted to non-residential use in the Coastal Zone since 1982.

According to state law, new housing developments constructed in the coastal zone shall, where feasible, provide housing for persons and families of low or moderate income (*Government Code § 65590*). According to City Building Department records, 31 new units have been constructed in the Coastal Zone since January 1, 1982. All of these units have been affordable to very low-income households (i.e., HUD Program 312 units).

AGE AND CONDITION OF HOUSING STOCK

Eureka has a relatively old housing stock. According to the 1990 Census, the median-age house in Eureka was built in 1949. By comparison, the median-age house in California was built in 1967. The age of Eureka's housing stock reflects the existence of a very large stock of Victorian Era housing (i.e., built circa 1860 through 1900). Of the 4,147 housing units built before 1940, approximately half were owner occupied and half were renter occupied in 1990. Table 2-4 reports the age of Eureka's housing stock by tenure.

TABLE 2-4
YEAR STRUCTURE BUILT BY TENURE
Eureka
1990

Year Built	Total Units	Percent	Vacant Units	Total Occupied Units	Owner	Renter
1989 to 1990	116	1.0%	11	105	35	70
1985 to 1988	405	3.4%	17	388	203	185
1980 to 1984	527	4.5%	39	488	144	344
1970 to 1979	1,005	8.6%	12	993	356	637
1960 to 1969	1,353	11.5%	56	1,297	705	592
1950 to 1959	2,335	19.9%	118	2,217	1,521	696
1940 to 1949	1,861	15.8%	100	1,761	838	923
Before 1940	4,147	35.3%	288	3,859	1,829	2,030
Median Year Built = 1949						
Source: U.S. Census Bureau						

As would be expected of any city with a large stock of older housing, Eureka has a substantial rehabilitation need. According to a 1990 windshield survey by City staff, there were 1,663 housing units (i.e., 14 percent of the 1990 housing stock) in need of rehabilitation. Of these, 13 units were dilapidated, 143 were in need of substantial rehabilitation, 1,184 were in need of moderate rehabilitation, and 323 were in need of minor repair.

HOUSING TENURE AND VACANCY RATE

According to the U.S. Census Bureau, almost 50 percent (i.e., 5,477 units) of Eureka's housing stock was renter occupied in 1990. By comparison, about 44 percent of California's housing stock was renter occupied in 1990. Of the 5,477 renter-occupied units, 42 percent (i.e., 4,274 unit) were either single family detached units or single family attached units.

The vacancy rate provides a quantified measure of supply and demand. The rule of thumb is that an overall vacancy rate of 4.5 percent to 5.0 percent indicates a market reasonably well balanced between supply and demand. According to the U.S. Census Bureau, Eureka's overall vacancy rate was 5.4 percent in 1990. The vacancy rate for detached and attached single-family housing was 3.6 percent and 7.0 percent, respectively. Vacancy rates for multi-family housing units were in the range of 9 to 11 percent. Table 2-5 shows vacancy rates for Eureka in 1990 by tenure and housing type.

TABLE 2-5
VACANCY BY TENURE AND HOUSING TYPE*
Eureka
1990

Type of Unit	Total	Percent of Total	Total Occupied	Vacancy Rate	Renter Occupied	% of Units Renter Occupied
SFD Detached	7,464	63.5%	7,196	3.6%	2,043	28.4%
SFD Attached	372	3.2%	346	7.0%	231	66.8%
2	844	7.2%	760	10.0%	706	92.9%
3 to 4	1,327	11.3%	1,209	8.9%	1,170	96.8%
5 +	1,363	11.6%	1,218	10.6%	1,194	98.0%
Mobile Home/Other	379	3.2%	379	0.0%	133	35.1%
Total	11,749	100.0%	11,108	5.4%	5,477	49.3%

Note: *The figures in this table are from Census Summary Tape File 3 (STF3) and vary slightly from the estimates for total housing units and total occupied housing units reported in Census Summary Tape File 1 (STF1). This is because STF3 is based on a sample count while STF1 is based on a full count of housing units in the city. STF1 reports 11,781 total housing units and 11,137 total occupied housing units; these are the figures used elsewhere in this chapter.

Source: U.S. Census Bureau; J. Laurence Mintier & Associates

According to the California Department of Finance, vacancy rates in Eureka in 1990 were essentially the same as in 1980. During the early 1980s, however, vacancy rates rose dramatically when Eureka lost manufacturing jobs. The vacancy rate slowly declined for the rest of the decade. Compared to vacancy rates in other Humboldt County cities, Eureka was in the middle with the fourth highest vacancy rate of the seven cities. Table 2-6 shows comparative vacancy rates for Humboldt County cities.

TABLE 2-6
COMPARATIVE VACANCY RATES
Humboldt County Cities
1980 through 1990
(percent)

Year	Arcata	Blue Lake	Eureka	Ferndale	Fortuna	Rio Dell	Trinidad
1980	3.00	4.60	5.65	3.91	4.82	6.00	13.20
1981	4.63	3.95	7.20	1.96	6.05	4.96	12.50
1982	4.75	4.31	6.67	2.84	4.51	4.67	12.87
1983	5.22	5.93	6.96	2.20	4.55	5.91	9.90
1984	5.36	4.87	6.26	3.04	4.97	5.33	10.89
1985	5.43	5.69	6.16	2.54	4.90	6.51	11.65
1986	5.70	6.38	5.91	3.89	6.13	7.59	13.59
1987	7.17	6.90	5.83	3.72	6.26	7.14	13.59
1988	6.30	6.72	5.62	5.04	6.29	7.31	13.11
1989	5.91	8.57	5.27	4.70	7.08	7.33	13.59
1990	3.63	7.96	5.47	4.87	4.85	6.51	15.00

Source: California Department of Finance

OVERCROWDING

An overcrowded housing unit is one in which more than 1.01 persons per room reside (excluding kitchen and bath). According to the U.S. Census Bureau, of the 11,137 occupied housing units in Eureka in 1990, 567 (5.1 percent) were overcrowded. Of these 567 overcrowded units, 107 (19 percent) were owner-occupied and 460 (81 percent) were renter occupied.

According to City staff, the U.S. Census Bureau estimate probably significantly underestimates the problem of overcrowding in the city. School district data, for example, indicates an increasing number of Asian and Hispanic immigrants enrolled in Eureka schools. This trend is confirmed by information in the *General Plan Background Report on Population* that indicates a significant influx of immigrants into Eureka in the last decade. These groups often have large families and low incomes which can result in overcrowded conditions.

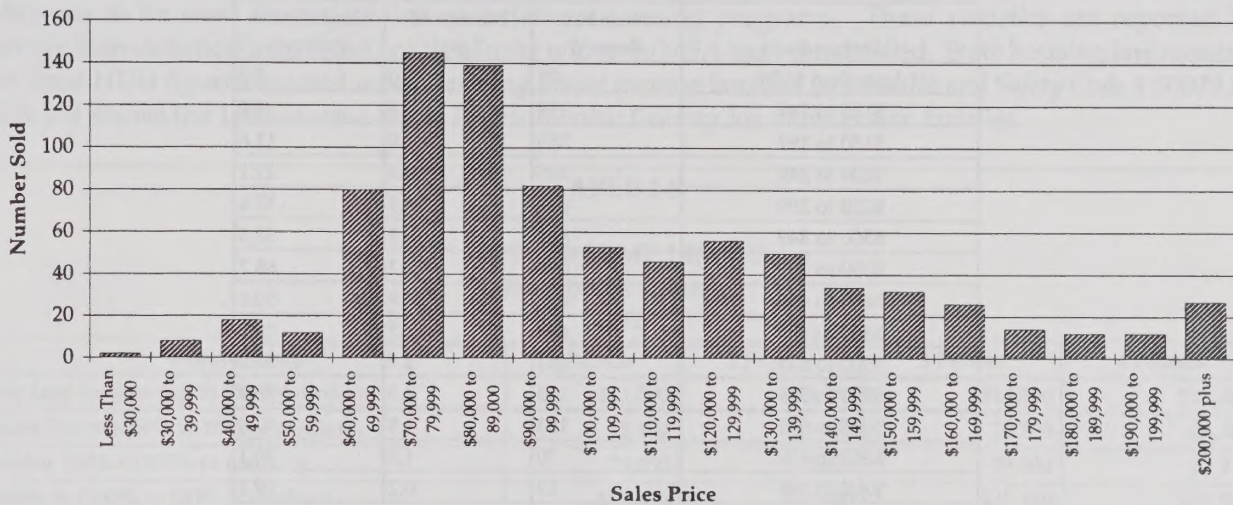
HOUSING COSTS, AFFORDABILITY, AND OVERPAYMENT

Housing Costs

Housing costs in Eureka are substantially below housing costs for California as a whole. According to a survey conducted Keyser Marston Associates, the median sales price of housing sold in Eureka between 1990 and 1992 was approximately \$90,000. The U.S. Census Bureau reported the median value of housing in Eureka to be \$82,100 in 1990. California's median sales price, by comparison, was more than twice that of Eureka's at \$199,240 according to a California Association of REALTORS® May 1992 report. The U.S. Census Bureau reported median value of housing in California to be \$195,500 in 1990. Table 2-7 shows housing sales by sales price for Eureka for the period January 1990 through June 1992. Chart 2-1 graphically depicts recent housing sales by price.

TABLE 2-7 RECENT HOUSING SALES BY PRICE Eureka January 1990 through June 1992			
Sales Price	Number Sold	Percent of Total	Cumulative Percent
Less Than \$30,000	2	.24	.24
\$30,000 to 39,999	8	.94	1.18
\$40,000 to 49,999	18	2.12	3.30
\$50,000 to 59,999	12	1.42	4.72
\$60,000 to 69,999	80	9.43	14.15
\$70,000 to 79,999	145	17.10	31.25
\$80,000 to 89,000	139	16.39	47.64
\$90,000 to 99,999	82	9.67	57.31
\$100,000 to 109,999	53	6.25	63.56
\$110,000 to 119,999	46	5.42	68.99
\$120,000 to 129,999	56	6.60	75.59
\$130,000 to 139,999	50	5.90	81.49
\$140,000 to 149,999	34	4.01	85.50
\$150,000 to 159,999	32	3.77	89.27
\$160,000 to 169,999	26	3.07	92.33
\$170,000 to 179,999	14	1.65	93.99
\$180,000 to 189,999	12	1.42	95.40
\$190,000 to 199,999	12	1.42	96.82
\$200,000 plus	27	3.18	100.00
Total	848	100.00	--
Source: Keyser Marston Associates, Inc.			

CHART 2-1

HOUSING SALES BY PRICE
1992

Based on a detailed analysis of its 1992 housing price survey, Keyser Marston also found the following:

- Since January 1990, the two-bedroom units sold ranged in size from 630 to 3,067 square feet and averaged 1,060 square feet in size. The three-bedroom units ranged from 800 to 3,200 square feet and averaged slightly over 1,500 square feet.
- Since 1990, the majority of sales were two-bedroom and three-bedroom units, 24.6 percent and 60.2 percent, respectively.
- The average sale price of the units sold since January 1990 was \$106,250. The average price of the two-bedroom unit was \$77,650, while the three-bedroom unit averaged \$113,500.

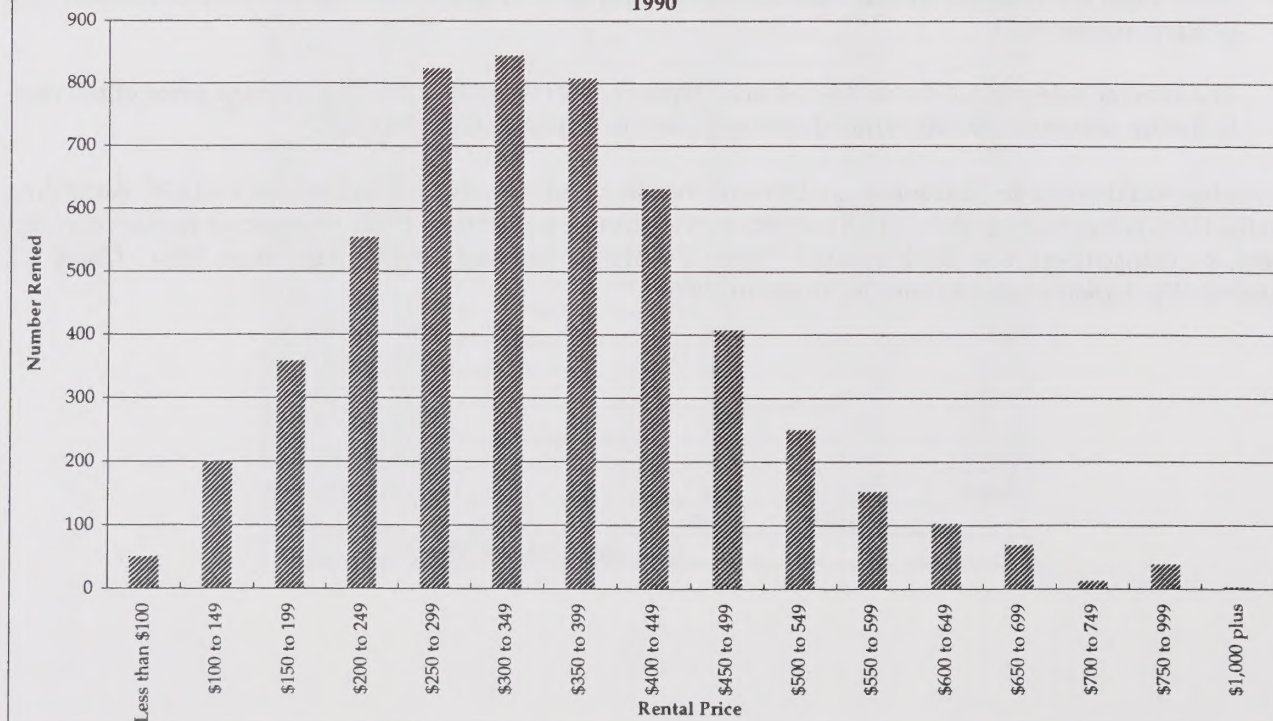
Housing rental prices are also substantially below housing rental prices for California as a whole. According to the U.S Census Bureau, the median contract rent in Eureka was \$340 in 1990. California's median contract rent, by comparison, was \$561 in 1990. Table 2-8 shows contract rent for Eureka in 1990. Chart 2-2 graphically depicts contract rent for Eureka in 1990.

TABLE 2-8
CONTRACT RENT
Eureka
1990

Contract Rent	Number Rented	Percent of Total	Cumulative Percent
Less than \$100	51	1.0	1.0
\$100 to 149	199	3.8	4.8
\$150 to 199	359	6.8	11.6
\$200 to 249	555	10.5	22.1
\$250 to 299	824	15.5	37.6
\$300 to 349	845	15.9	53.5
\$350 to 399	808	15.2	68.7
\$400 to 449	632	11.9	80.6
\$450 to 499	408	7.7	88.3
\$500 to 549	251	4.7	93.0
\$550 to 599	153	2.9	95.9
\$600 to 649	103	1.9	97.8
\$650 to 699	70	1.3	99.1
\$700 to 749	13	0.2	99.3
\$750 to 999	39	0.6	99.9
\$1,000 plus	3	0.1	100.0
	5,313	100.1	

Source: U.S. Census Bureau; J. Laurence Mintier & Associates

CHART 2-2
CONTRACT RENT
Eureka
1990



Housing Affordability

HUD Income Limits

Each year the U.S. Department of Housing and Urban Development (HUD) publishes income limits for California to be used in conjunction with federal housing programs. These statistics are reported by metropolitan statistical area (MSA) or by county where no MSA has been defined. State housing law requires that these HUD figures be used when defining lower income families (see *Health and Safety Code* § 50079.5). Table 2-9 shows the 1992 income limits for Humboldt County for various size families.

TABLE 2-9				
HUD INCOME LIMITS Humboldt County 1992				
Income Range	1 Person	2 Person	3 Person	4 Person
Very Low Income (up to 50% of median)	\$11,500	\$13,150	\$14,800	\$16,450
Lower Income (50% to 80% of median)	18,400	21,050	23,700	26,300
Median (80% to 100% of median)	23,050	26,300	29,600	32,900
Moderate (100% to 120% of median)	\$27,650	\$31,600	\$35,550	\$39,500
Median Family Income = \$32,200				
Source: HUD; J. Laurence Mintier & Associates				

Ownership Affordability

Home ownership appears to be affordable to most households in Eureka. The Keyser Marston study on recent home sales indicated that there were 28 homes in Eureka that sold for less than \$50,000 between January 1990 and June 1992. These homes would be affordable to very low-income households in Eureka. There were 237 homes that sold for less than \$80,000, which would be affordable to lower-income households. There were 376 homes that sold for less than \$130,000, most of which would be affordable to moderate-income households. Eureka's median priced home of \$90,000 would be affordable to all but the very low- and low-income households in Eureka. Table 2-10 shows affordability for home ownership in Eureka at various income levels.

TABLE 2-10							
OWNERSHIP AFFORDABILITY Eureka 1992							
HUD Category	Range	Number of Households ¹	Percent	Annual Income ²	Mortgage ³	Monthly Payment	Price of Affordable House ⁴
Very Low Income	up to 50%	3,936	34.7	\$14,800	\$48,120	370.00	\$53,466
Lower Income	50% to 80%	2,189	19.3	\$23,700	\$77,057	592.50	\$85,619
Median	80% to 100%	1,009	8.9	\$29,600	\$96,240	740.00	\$106,933
Moderate	100% to 120%	930	8.2	\$35,550	\$115,585	888.75	\$128,428
Above Moderate	120% and above	3,278	28.9	\$35,550+	\$115,585+	888.75+	\$128,428+
Total		11,342	100.0				
Median Family Income = \$32,200							
Notes: ¹ This distribution is based on Humboldt County's 1990 income distribution (as reported by the U.S. Census Bureau) applied to 1992 DOF household estimates for Eureka.							
² Income limit for a three-person family as defined by HUD in 1992, or as derived from HUD 1992 figures.							
³ Assumes a 10 percent down payment.							
⁴ Assumes 30 percent of income for house expense, 8.5 percent interest rate, 30-year fixed-rate mortgage.							
Source: HUD; J. Laurence Mintier & Associates							

Rental Affordability

Home and apartment rental is also generally affordable in Eureka. According to the U.S. Census Bureau, the median contract rent in Eureka was \$340 in 1990. This means half of all rental housing units (i.e., 2,656 of 5,313 units) were affordable to very low-income households in 1990. There were, however, almost 4,000 very low-income households in Eureka in 1992. Table 2-11 shows affordability for rental units at various income levels.

TABLE 2-11

RENTAL AFFORDABILITY
Eureka
1992

HUD Category	Range	Number of Households ¹	Percent	Annual Income ²	Affordable Monthly Rent ³
Very Low Income	up to 50%	3,936	34.7	\$14,800	\$370
Lower Income	50% to 80%	2,189	19.3	23,700	\$593
Median	80% to 100%	1,009	8.9	29,600	\$740
Moderate	100% to 120%	930	8.2	35,550	\$889
Above Moderate	120% and above	3,278	28.9	35,550+	\$889+
Total		11,342	100.0		

Median Family Income = \$32,200

Notes: ¹This distribution is based on Humboldt County's 1990 income distribution (as reported by the U.S. Census Bureau) applied to 1992 DOF household estimates for Eureka.

²Income limit for a three-person family as defined by HUD in 1992, or as derived from HUD 1992 figures.

³Assumes 30 percent of monthly income.

Source: HUD; J. Laurence Mintier & Associates

Overpayment for Housing

Overpayment for housing in Eureka was calculated using data from the U.S. Census Bureau and HCD guidelines for calculating overpayment, which uses the rule of thumb that up to 25 percent of income spent on housing is "affordable" (the federal government uses 30 percent as the affordability threshold). In 1990, 49.5 percent of the Eureka's low-income owner households paid more than 25 percent of their income for housing, and 77.3 percent of the low-income renter households paid more than 25 percent. Table 2-12 shows the number and percentage of households (both owners and renters) in Eureka that paid more than 25 percent of their income for housing in 1990 and compares these figures to those for Humboldt County and California.

TABLE 2-12

OVERPAYMENT FOR HOUSING
LOW INCOME HOUSEHOLDS PAYING MORE THAN 25% OF INCOME ON HOUSING
Eureka
1990

	Renters			Owners		
	Number of Low Income Households	Number of Low Income Households Overpaying	Proportion of Low Income Renters Overpaying	Number of Low Income Households	Number of Low Income Households Overpaying	Proportion of Low Income Owners Overpaying
Eureka	4,362	3,374	77.3%	2,020	1,000	49.5%
Humboldt County	13,702	10,427	76.1%	7,193	3,611	50.2%
California	2,629,794	2,262,12	86.0%	1,091,703	574,817	52.7%

Source: U.S. Census Bureau; J. Laurence Mintier & Associates

HOUSING NEEDS

INTRODUCTION

Under the state housing element requirement, housing needs are defined according to three categories: existing needs, projected needs, and special needs. The previous sections identifies the following existing needs:

- Overcrowding (1990) -- 567 overcrowded units (107 owner occupied; 460 renter occupied)
- Substandard Units (1990) -- 1,663 units needing rehabilitation
- Overpayment (1990) -- 4,374 low-income households overpaying for housing (1,000 home-owner households; 3,374 renter households)

EUREKA'S SHARE OF PROJECTED REGIONAL NEEDS

To assist local governments in Humboldt County in making projections of future housing needs, HCAOG, in May 1992, issued a report entitled *Regional Housing Needs Plan for Humboldt County* for the period January 1, 1991, to July 1, 1997. In response to requests from the cities of Arcata and Eureka, HCAOG revised its fair share numbers and reissued the *Regional Housing Needs Plan for Humboldt County* in October 1992.

By law, HCAOG's determination of local fair share of regional housing needs is to take into consideration the following factors: market demand for housing; employment opportunities; availability of suitable sites and public facilities; commuting patterns; and the type and tenure of housing. For each jurisdiction, HCAOG calculated the 1991 existing need, defined as the short-fall between the actual vacancy rate in the city and the optimal vacancy rate (i.e., 2 percent vacancy for ownership units and 6 percent for rental units), and then determined a projected housing need to 1997 based on the number of units needed to accommodate projected household growth between 1991 and 1997 and the additional units needed to achieve the optimal vacancy rate. The number of units needed to replace housing that is removed from the market due to deterioration or conversion is also estimated by HCAOG and added to projected need. Table 2-13 shows existing and projected housing needs for Eureka as determined by HCAOG.

TABLE 2-13				
BASIC CONSTRUCTION NEEDS				
Eureka				
1991-1997				
Household Increase	1991 Vacancy Need	1997 Vacancy Need	Replacement Need 1991 to 1997	Total
588	137	57	127	909
Source: Humboldt County Association of Governments				

Based on U.S. Census Bureau data with some adjustments, HCAOG breaks down total 1991-1997 housing needs according to four income categories: very low, low, moderate, and above moderate. The percentage of households within each income category was determined by HCAOG by first determining income intervals for the four income categories based upon the county's income distribution (as reported by the U.S. Census Bureau). These percentages are then applied to the city's total housing needs to arrive at basic construction needs by income category. HCAOG's determination of the basic construction needs by income category for Eureka is shown in Table 2-14.

TABLE 2-14

BASIC CONSTRUCTION NEEDS BY INCOME CATEGORY**Eureka
1991-1997**

Very Low ¹	Low ²	Moderate ³	Above ⁴ Moderate	Total
209	138	138	424	909
23.0%	15.2%	15.2%	46.6%	100.0%

Notes: ¹Units for households earning less than 50 percent of median income
²Units for households earning between 50 and 80 percent of median income
³Units for households earning between 80 and 120 percent of median income
⁴Units for households earning more than 120 percent of median income

Source: Humboldt County Association of Governments

For planning purposes, these HCAOG figures need to be adjusted to reflect the units that have been issued building permits between January 1, 1991 and July 1992. Table 2-15 shows modified need projections based on this adjustment. (In 1993, the State Legislature extended the current housing element planning period for all local governments by two years (AB 2172). Thus, the remaining need projection is for the period January 1, 1991, through July 1, 1999.)

TABLE 2-15

**ADJUSTED HOUSING NEED PROJECTIONS
BY INCOME CATEGORY****Eureka
1991-1999**

	Very Low ¹	Low ²	Moderate ³	Above ⁴ Moderate	Total
HCAOG Needs Projection	209	138	138	424	909
Building Permits (January 1991 to July 1992) ⁵	0	10	87	50	147
Balance of Need	209	128	51	374	762

Notes: ¹Units for households earning less than 50 percent of median income
²Units for households earning between 50 and 80 percent of median income
³Units for households earning between 80 and 120 percent of median income
⁴Units for households earning more than 120 percent of median income
⁵Based upon the City's building permit information; all permits for single family units were assumed to fall into the above-moderate-income category; all permits for multi-family were assumed to fall into the moderate-income category; all second units were assumed to fall into the low-income category.

Source: Humboldt County Association of Governments; City of Eureka

SPECIAL NEEDS

Beyond the new housing construction needs documented in the previous sections of this chapter, state law requires that the housing element include an assessment of the housing needs of special groups within the community, including the disabled, elderly, large families, farmworkers, families with female heads of household, and families and persons in need of emergency shelter or transitional housing. The current number of residents falling into each of these categories is estimated in Table 2-16.

TABLE 2-16	
SUMMARY OF SPECIAL NEEDS	
Eureka	
1990	
Category	Number
Households with Elderly (65+ years) (living alone)	1,373
Households with Elderly (65+ years) (living with someone)	1,469
Large Households (five or more persons) (living in owner-occupied unit)	429
Large Households (five or more persons) (living in renter-occupied unit)	468
Female Householder with Children (no husband present)	995
Male Householder with Children (no wife present)	234
Persons in Homeless Shelters	173
Persons Visibly Living in Street Locations	27
Disabled Persons (mobility or self-care limitation)	1,490
Source: U.S. Census Bureau	

The following sections describe the housing needs of these groups in more detail. Table 2-17 reports special needs by census tract based on the 1990 Census. Figure 2-1 shows the location of census tracts in Eureka.

TABLE 2-17

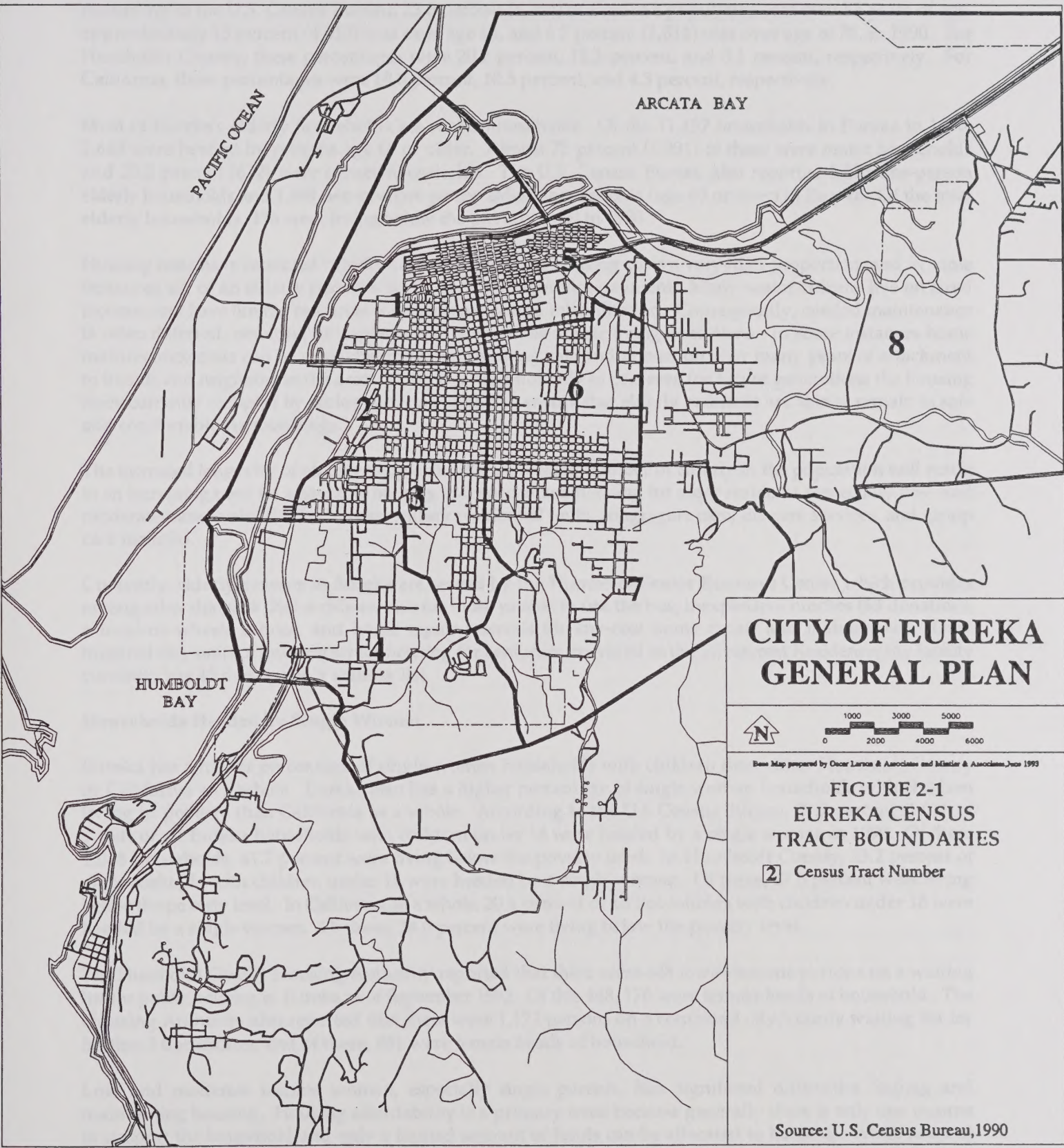
SPECIAL NEEDS BY CENSUS TRACT

Eureka

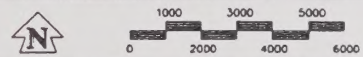
1990

Census Tract	Elderly Living Alone	Elderly Living w/ Someone	Large Household Owner-occupied	Large Household Renter-occupied	Female Householder w/Child	Male Householder w/Child	Persons in Homeless Shelter	Persons Homeless in Street Locations	Disabled Persons
1	218	105	32	93	192	27	40	14	278
2	314	326	84	123	307	65	67	12	296
3	205	243	88	73	146	39	47	0	308
4	26	51	27	16	19	8	14	0	18
5	187	155	30	81	146	37	5	1	213
6	297	375	102	51	123	34	0	0	255
7	113	208	65	30	62	24	0	0	122
8	13	6	1	1	0	0	0	0	0

Source: U.S. Census Bureau



CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Mintier & Associates, June 1993

**FIGURE 2-1
EUREKA CENSUS
TRACT BOUNDARIES**

2 Census Tract Number

Source: U.S. Census Bureau, 1990

Elderly

Eureka has a higher percentage of elderly persons than either Humboldt County or California as a whole. According to the U.S. Census Bureau, 23.0 percent (6,204) of Eureka's population was over 55 years of age, approximately 15 percent (4,017) was over age 65, and 6.7 percent (1,814) was over age of 75, in 1990. For Humboldt County, these percentages were 20.2 percent, 12.3 percent, and 5.1 percent, respectively. For California, these percentages were 18.0 percent, 10.5 percent, and 4.3 percent, respectively.

Most of Eureka's elderly households are renter households. Of the 11,137 households in Eureka in 1990, 2,663 were headed by persons age 65 or older. Almost 75 percent (1,991) of these were renter households and 25.2 percent (672) were owner households. The U.S. Census Bureau also reported 1,373 one-person elderly households and 1,469 two-or-more person elderly households (age 65 or over) in Eureka. Of the total elderly households, 316 were living below the poverty level in 1990.

Housing costs have escalated rapidly since 1980, making housing costs a very high proportion, and in some instances all, of an elderly person's Social Security Insurance payment. Many senior citizens live on fixed incomes and have limited resources for maintenance and rehabilitation. Consequently, needed maintenance is often deferred, resulting in unpleasant or sometimes unsafe living conditions. In some instances home maintenance costs can be overwhelming, necessitating sale and relocation after many years of attachment to friends and neighbors in the area. There is a need not only to preserve for future generations the housing stock currently occupied by senior citizens but also to ensure that elderly residents are able to remain in safe and comfortable surroundings.

The increased longevity of elderly people and the increasing number of elderly in the population will result in an increasing need for affordable housing and specialized housing for older residents (especially low- and moderate-income elderly) such as secondary residential units, congregate care, life care services, and group care facilities.

Currently, elderly persons in Eureka are served by the Humboldt Senior Resource Center which provides among other things, a Dial-a-ride service for those unable to use the bus, inexpensive lunches (\$3 donation), a meal-on-wheels service, and home repair referrals for low-cost home repair and maintenance. One-hundred fifty units of low-cost senior housing for seniors is provided at the Silvercrest Residence; the facility currently has 45 persons on a waiting list.

Households Headed by Single Women

Eureka has a higher percentage of single-women households with children than either Humboldt County or California as a whole. Eureka also has a higher percentage of single women households with children living in poverty than California as a whole. According to the U.S. Census Bureau, 29.2 percent (1,018 of 3,464) of all Eureka households with children under 18 were headed by a single woman in 1990. Of these 1,018 households, 41.7 percent were living below the poverty level. In Humboldt County, 23.2 percent of all households with children under 18 were headed by a single woman. Of these, 47.6 percent were living below the poverty level. In California as a whole, 20.4 percent of all households with children under 18 were headed by a single woman. Of these, 38.0 percent were living below the poverty level.

The Humboldt County Housing Authority reported that there were 448 lower-income persons on a waiting list for public housing in Eureka as of September 1992. Of this 448, 176 were female heads of household. The Housing Authority also reported that there were 1,172 persons on a combined city/county waiting list for Section 8 Certificates, and of these, 801 were female heads of household.

Low and moderate income women, especially single parents, face significant difficulties finding and maintaining housing. Housing affordability is a primary issue because generally there is only one income to support the household and only a limited amount of funds can be allocated to housing. While some of

these households may find housing assistance through the Section 8 Rental Assistance Program, many others are subjected to high rents and/or overcrowded conditions. Although there is a continuing need for affordable rental housing for small families, there is also a need for shared housing and group living alternatives where single-parent families can share not only space but child care and other resources as well.

Disabled Persons

Eureka has a lower percentage of disabled persons than either Humboldt County or California as a whole. Humboldt County, however, has a relatively large population of disabled persons. According to the U.S. Census Bureau, 1,490 persons (7.2 percent) of the total 20,697 persons age 16 and over in Eureka had a mobility limitation, a self-care limitation, or both. For Humboldt County this percentage was 16 percent and for California this percentage was 13 percent.

Special needs of disabled persons vary depending upon the particular disability with which one is afflicted. For example, the needs of a blind person differ greatly from those of persons confined to a wheelchair. Special facilities such as ramps, elevators or specially designed restrooms necessary for wheelchair access are architectural features needed to make dwellings suitable for persons confined to a wheelchair. Special features needed by ambulatory persons constrained by other disabilities may not be architectural. Instead, these might be simple alterations to conventional dwelling units for furnishing and appliances which make ordinary tasks of housekeeping and home life less trying and more enjoyable. In families, the needs of the disabled person are generally fewer than those of a single person. Nevertheless, a disabled person in a family would have special needs. Special architectural features could be valuable in giving this person a greater independence, dignity, and quality of life.

Currently, disabled persons in Eureka are served by the Humboldt Access Project which provides among other things, building modifications, peer counseling, deaf services, and referral for housing. Transportation is provided to the low-income disabled persons by the Humboldt County Association for Retarded Citizens.

Family Housing

Family housing encompasses a wide range of housing needs. These include female-headed households (discussed earlier), married couples, and large families (with 5 or more persons). According to the U.S. Census Bureau, 31.1 percent (3,464 of 11,137) of all households in Eureka had children under 18. Of these family households, 13.3 percent (881 of 6,623) were large households with five or more persons.

Large families generally require bigger houses and apartments. A substantial portion of Eureka's housing stock consists of large houses, but most of these units are not available to lower-income families which cannot afford to own a house. Approximately 41 percent (4,573 of 11,108) of all occupied housing units in the city in 1990 had three bedrooms or more, but less than a quarter of these (1,012 units) were renter occupied.

Families and Persons in Need of Emergency Shelter or Transitional Housing

Throughout the country, homelessness has become a major concern. Factors contributing to the increase in homeless persons and families and those in need of transitional housing include:

- The lack of housing affordable to very low and low income persons
- Increases in unemployment or under-employment
- Reductions in government subsidies
- Deinstitutionalization of the mentally ill
- Domestic violence
- Drug addiction
- Dysfunctional families

Estimating the Extent of Homelessness

The housing needs of homeless persons are more difficult to measure and assess than those of any other population subgroup. Since these individuals have no permanent addresses, they are not likely to be fully counted in the census. Nonetheless, there are various sources of information that, when taken together, provide a rough indication of the extent of homelessness in Eureka.

- According to the *Humboldt County Homeless Task Force Report to the Humboldt County Board of Supervisors*, published in March 1991, there were more than 1,200 homeless persons in Humboldt County in 1990. Of these, 20 were youth away from home, 700 were in families, and 500 were individuals who were substance abusers, mentally ill, or generally indigent. Although the report does not generally specify where homeless persons are located in the county, it does report that of the estimated 500 individuals, approximately 200 were living in Eureka.
- The 1990 Census reported 173 persons in homeless shelters and 27 homeless persons visible in street locations in Eureka in 1990.
- The Humboldt County Housing Authority reported that there were 1,172 persons on a combined city/county waiting list for Section 8 Certificates, and that of these, 883 were either homeless, paying more than 50 percent of their income for housing, or living in substandard housing.
- The Humboldt County Social Services Department reported that it provided Aid to Families with Dependent Children (AFDC) Homeless Assistance Special Need to 300 families per month in 1991. Humboldt County also reported that it provided emergency homeless assistance from General Relief (GR) to an annual average of 55 persons per month in 1990.
- The number of people who either passed through Humboldt County Social Services or passed in and out of homelessness doubled from 3,000 persons to 6,000 in FY 1991-92 according to a survey of service providers. This rise in numbers heavily impacted both service providers and the County funded General Relief system.

Table 2-18 summarizes the extent of homelessness in Humboldt County in FY 1991-92.

TABLE 2-18	
HOMELESS RECEIVING SERVICES AND ESTIMATES OF UNSERVED*	
FY 1991/92	
FINANCING AID FOR HOUSING	
General Relief (homeless as 80% of average 800/month)	7,680
AFDC Homeless Assistance	5,400
VOUCHERS AND SHELTER	
Redwood Community Action Agency:	
Emergency vouchers	955
Family members (2-6 months / 21 beds)	65
Youth Service Bureau - shelter	50
(estimated unserved single youth)	200
Humboldt Women for Shelter (vouchers)	1,835
Women's House, Garberville (8 beds)	650
Eureka Rescue Mission (27,000 shelter beds)	@ 5,000
Arcata House (6 beds)	1,200
United Indian Health (vouchers)	250
Saint Vincent de Paul (vouchers)	560
Municipal Auditorium (6,500 shelter beds)	@ 3,000
CAMPING	
South Jetty (resident)	45
Southern Humboldt (8-9 camps)	50
HSU students in forests and crashing	300
Clam Beach (resident)	100
Eureka "Weeds"	@ 200
Estimated scattered in rural areas	200-300
OTHER SERVICES	
Food for People (Food Bank)	2,050
Arcata Food Endeavor	1,050
Eureka Vets Center	540
Note: *These are not necessarily unduplicated numbers either within or between agencies	
Source: Homeless Task Force; Homeless Coordinator	

Homeless Facilities in Humboldt County and Eureka

Eureka has two permanent homeless shelters which together can accommodate more than 70 persons each night. Eureka Rescue Mission can accommodate over 50 persons nightly, and Redwood Community Action Agency (RCAA) can accommodate up to 21 persons at its Bridge House.

In addition to these facilities, Humboldt County and Eureka operate several programs and expanded others in 1991 and 1992 to provide housing accommodations and supportive services for homeless persons.

- In June 1992, the Humboldt County Board of Supervisors extended an invitation to the cities of Humboldt County to join a Task Force on Homelessness and Housing. The cities of Eureka and Arcata responded and became active participants. The Homeless Task Force drafted a resolution in Fall of 1992 that was subsequently passed by the Cities of Arcata and Eureka and the County. The resolution acknowledged homelessness was a common problem to be addressed by Humboldt County and Humboldt County cities.

- Working together to put an emergency homeless shelter in place before Winter (1992/93), Humboldt County and the City of Eureka each agreed to allocate \$17,000 for staffing a shelter to be located in Eureka. Humboldt County also approved \$12,000 for staffing a shelter in Southern Humboldt County at Redway. The Eureka site has the capacity to shelter up to 100 people and is managed by Alcohol/Drug Care Services with the assistance of the Consortium for Shelter/Support Services. The Redway facility opened temporarily in the basement of Redwood Rural Health Center, but is searching for a more appropriate site. This facility can accommodate up to 25 persons. The Eureka shelter was open through March 1993 and the Redway facility was opened through April 1993.
- Arcata House, which opened its doors in April 1992, can accommodate up to six persons. Arcata House staff counsels many others through its outreach efforts and provides case management to residents who are placed in houses of volunteers in the community.
- RCAA/Youth Services Bureau's Emergency Youth Shelter opened in December 1991 and provides shelter for six youths between the ages of 10 and 17.
- RCAA Transitional Family Shelter expanded its case management support to continue working with families for up to one year after they have moved into new homes. This program has helped families attain stability while still keeping beds available in Bridge and Summer Street houses for new families. RCA is currently rehabilitating a house adjacent to Bridge House that will serve as an annex and provide room for two additional families beginning early in 1993.
- RCAA Temporary Housing for Earthquake Victims in Rio Dell provided trailers donated by Bank of America to nine families displaced by the April 1992 earthquake. They also provide case management as needed to help people make a transition to new homes.
- RCAA Eviction Prevention Program provided funds for 13 families in crisis due to a disruption in their income. Families had to be able to continue paying rent, and landlords had to agree to the program. The assistance ranged from \$300 to \$700 and prevented these families from being evicted. Program funding was available for only a four month period in FY 1991-92, and the program is currently defunct.
- The Humboldt County Housing Authority was granted 55 additional Section 8 certificates in FY 1991-92 to provide housing to people who are homeless. Staff has agreed to provide five of these certificates to the HIV/AIDS Care Consortium to provide housing to the homeless who are diagnosed with HIV or AIDS.
- Mitchell-Redner Centers, Inc., received a \$100,000 settlement fund from a General Relief suit to develop a consortia of homeless support centers in Southern Humboldt and Eureka. These support centers will provide a means of integrating and coordinating the delivery of homeless services
- Redwoods United Supported Employment Program began offering outreach services to the Eureka winter shelter and will work with support centers to develop employment opportunities.
- Alcohol/Drug Care Services After Care Housing in 1992 opened another house for 10 men who complete alcohol or drug treatment programs and want a place to stay in housing that is affordable and guaranteed to be drug and alcohol free. Residents share housing expenses and can participate in support groups through the detox program or other support groups.

Planned Projects

In October 1993, Humboldt County solicited proposals for establishment of a homeless shelter on private property in Eureka. The County will contract for the building and the operation of the building. The shelter will open as soon as a proposal is selected and the building can be made ready for occupancy.

The RCAA is developing a residential employment center designed to house up to 40 men and women in the former California Conservation Corps facility in Fortuna. This program would provide on-the-job training and housing.

RCAA and the City of Eureka applied in 1993 for HOME Program funds to develop rental housing for very low, low, and moderate-income households and persons. RCAA housing would have provided rental units in Rio Dell, McKinleyville and Fortuna, while the City of Eureka would have provided units in Downtown Eureka as part of the Main Street Project.

Farmworkers

The U.S. Census Bureau reported that in 1990, 348 persons in Eureka were employed in farming, forestry, fishing, and mining industries. Humboldt County has a significant fishing industry and also has a number of dairy farms and other types of agricultural operations. It is unknown how many of the 348 persons employed in these industries and living in Eureka are employed in each of these industries. Some of those employed in agriculture may be seasonal farmworkers who require temporary, low-cost housing. In any event, the number of seasonal farmworkers would be very small.

ASSISTED HOUSING DUE TO CONVERT TO NON-LOW-INCOME HOUSING

Starting in 1992, housing elements are required by state law to include an analysis of assisted multifamily housing units due to convert to market-rate housing. The analysis is to cover the period starting at the statutory date for housing element revision and run for the following 10-year period. The statutory revision date for Eureka's Housing Element was July 1, 1992; the end of the required 10-year period for analysis of assisted housing units is, therefore, July 1, 2002. Most low- and moderate-income housing units assisted through either a federal, state, or local housing program qualify as assisted housing. The analysis should include information regarding the earliest date of subsidy termination, the estimated cost of preserving the low-income status of the units, the estimated cost of replacing the units, and an analysis of financial options for funding preservation or replacement of the units.

There is one subsidized, very low-income multi-family project in Eureka for which the subsidy is due to expire during the 10-year period. The California Housing Partnership Corporation report entitled *Inventory of Federally-Subsidized Low-Income Units At Risk of Conversion* lists Silvercrest Residence at 2141 Tydd Street in Eureka as a Department of Housing and Urban Development (HUD) assisted project for which the earliest date of subsidy termination was August 1991. The project is owned by the Salvation Army which is a national non-profit organization.

Silvercrest Residence was built in 1982 under the Section 202 Mortgage Insurance Program, which provides mortgage insurance to projects developed for elderly residents. Silvercrest Residence is also subsidized by the Section 8 program which pays the difference between the resident's share of rent (usually 30 percent of income) and fair market rent. The Section 202 program requires that units remain affordable for a 40-year period, and therefore this part of the subsidy would not terminate until the year 2022. The Section 8 program is renewable every 10 years and was last renewed in August 1991. Therefore, Section 8 renewal will be required again by 2001, and it is anticipated that the Salvation Army will seek renewal at that time. Because the project is owned by the Salvation Army, and because Section 202 funds require a 40-year affordability period, it is unlikely that this project will convert to non-low-income housing.

AVAILABILITY OF LAND AND SERVICES

INTRODUCTION

This section evaluates the potential for residential development in Eureka and the availability of public services and facilities to accommodate this development.

RESIDENTIAL DEVELOPMENT OPPORTUNITIES

Vacant Residential Sites

According to a survey completed in August 1992 by City staff, Eureka has approximately 25 acres of vacant land currently zoned for residential use. This land could accommodate 273 dwelling units at maximum zoned densities. This total does not include potential density bonus units. Of this 25 acres, 3 acres are zoned for high-density residential use, 6 acres are zoned for medium-density residential use, and 16 acres are zoned for very low- and low-density residential use.

Some of these vacant sites are substandard in size but are still available for development. The Eureka *Zoning Ordinance*, Section 10-5.203.4 states: "A site having an area, frontage, width, or depth less than the minimum prescribed for the district in which the site is located . . . may be used for a permitted use or a conditional use . . . subject to all other regulations for the district."

The City of Eureka has approved numerous projects on infill sites since its last housing element (i.e., 1984). These projects include a variety of housing types including single-family and multi-family dwellings. A variety of residential uses can be accommodated on small parcels, including: single family dwellings, halfplexes, duplexes, triplexes, fourplexes, and townhomes.

The City, as part of its General Plan update, is considering annexation of adjacent territories. If the City decides to annex vacant developable land, additional sites would then be available for residential development. A final decision to proceed with annexations is not due until late 1994 or early 1995, and actual annexations might not take place within the current housing element planning period (i.e., by July 1999).

Table 2-19 shows development potential for existing vacant residential sites in Eureka as of August 1992, and Figure 2-2 shows the locations of sites with a potential for five dwelling units or more.

TABLE 2-19			
DEVELOPMENT POTENTIAL FOR VACANT RESIDENTIAL SITES			
Eureka			
August 1992			
Parcel #	Zoning	Acreage	Potential# DU
HIGH-DENSITY RESIDENTIAL SITES			
004-195-09	RM-1,000	0.22	7
005-083-09	RM-1,000	0.17	5
006-241-08	RM-1,000	0.25	5
006-241-09	RM-1,000	0.75	20
004-106-12	RM-1,000	0.15	4
004-114-05	RM-1,000	0.08	2
004-123-05	RM-1,000	0.11	3
004-131-03	RM-1,000	0.09	2
004-152-05	RM-1,000	0.67	27
004-152-18	RM-1,000	0.06	1
004-163-06	RM-1,000	0.12	3
004-202-07	RM-1,000	0.12	3
004-243-03	RM-1,000	0.10	2
004-253-07	RM-1,000	0.30	11
005-142-13	RM-1,000	0.10	2
Subtotal		3.29	97
MEDIUM-DENSITY RESIDENTIAL SITES			
006-011-25	RM-2,500	0.14	2
006-012-01	RM-2,500	0.16	2
008-112-28	RM-2,500	0.25	4
009-021-01	RM-2,500	0.32	5
009-171-32	RM-2,500	0.04	1
009-171-33	RM-2,500	0.05	1
009-171-36	RM-2,500	0.08	1
008-022-28	RM-2,500	0.23	4
008-031-13	RM-2,500	0.24	4
008-031-17	RM-2,500	0.15	2
008-031-18	RM-2,500	0.15	2
008-052-11	RM-2,500	0.10	1
008-052-12	RM-2,500	2.13	10
008-061-04	RM-2,500	0.30	5
008-061-05	RM-2,500	0.30	5
009-021-15	RM-2,500	0.14	2
009-023-06	RM-2,500	0.07	1
009-124-05	RM-2,500	0.28	4
009-124-09	RM-2,500	0.23	4
010-016-09	RM-2,500	0.15	2
010-033-13	RM-2,500	0.15	2
010-052-18	RM-2,500	0.06	1
010-061-15	RM-2,500	0.14	2
010-131-01	RM-2,500	0.20	3
Subtotal		6.06	70
LOW-DENSITY RESIDENTIAL SITES			
002-161-05	RS-6,000	0.36	2
002-181-19	RS-6,000	0.34	2
004-204-05	RS-6,000	0.15	1

Parcel #	Zoning	Acreage	Potential# DU
005-212-10	RS-6,000	0.35	2
005-212-11	RS-6,000	0.33	2
005-222-20	RS-6,000	0.82	5
006-031-06	RS-6,000	0.17	1
006-045-07	RS-6,000	0.17	1
006-045-12	RS-6,000	0.17	1
006-053-08	RS-6,000	0.14	1
006-054-07	RS-6,000	0.08	1
006-141-18	RS-6,000	0.09	1
006-153-09	RS-6,000	0.21	1
006-201-25	RS-6,000	0.04	1
006-211-21	RS-6,000	0.22	1
006-211-24	RS-6,000	0.14	1
006-274-14	RS-6,000	0.20	1
006-312-16	RS-6,000	0.15	1
008-053-09	RS-6,000	0.10	1
008-121-12	RS-6,000	0.14	1
008-142-14	RS-6,000	0.09	1
008-143-08	RS-6,000	0.06	1
008-143-11	RS-6,000	0.06	1
008-151-46	RS-6,000	0.07	1
008-181-01	RS-6,000	0.45	3
008-221-26	RS-6,000	0.17	1
009-091-29	RS-6,000	0.17	1
009-195-14	RS-6,000	0.16	1
009-202-06	RS-6,000	0.24	1
009-273-13	RS-6,000	0.40	2
009-273-19	RS-6,000	0.36	2
009-281-11	RS-6,000	1.00	7
009-281-25	RS-6,000	0.35	2
009-281-43	RS-6,000	0.84	6
010-081-45	RS-6,000	0.46	3
010-091-17	RS-6,000	0.10	1
010-111-06	RS-6,000	0.10	1
010-121-06	RS-6,000	0.37	2
010-121-13	RS-6,000	0.18	1
010-121-18	RS-6,000	0.31	2
010-121-20	RS-6,000	0.23	1
010-221-04	RS-6,000	0.10	1
010-261-10	RS-6,000	0.16	1
010-292-05	RS-6,000	0.46	3
011-111-02	RS-6,000	0.16	1
011-176-09	RS-6,000	0.17	1
011-176-10	RS-6,000	0.17	1
011-186-01	RS-6,000	0.18	1
011-191-20	RS-6,000	0.09	1
011-201-06	RS-6,000	0.34	2
012-035-03	RS-6,000	0.17	1
012-041-11	RS-6,000	0.15	1
012-055-04	RS-6,000	0.08	1
012-056-08	RS-6,000	0.15	1
012-131-22	RS-6,000	0.45	3
012-152-05	RS-6,000	0.25	1
012-162-03	RS-6,000	0.11	1
012-191-07	RS-6,000	0.15	1

Parcel #	Zoning	Acreage	Potential# DU
012-221-15	RS-6,000	0.12	1
013-021-12	RS-6,000	0.09	1
013-021-21	RS-6,000	0.16	1
013-021-22	RS-6,000	0.14	1
013-044-06	RS-6,000	0.08	1
013-191-26	RS-6,000	0.33	2
013-201-63	RS-6,000	0.15	1
013-201-64	RS-6,000	0.10	1
013-201-73	RS-6,000	0.24	1
018-181-33	RS-6,000	0.19	1
018-193-04	RS-6,000	0.17	1
008-131-07	RS-6,000	0.11	1
Subtotal		15.76	104
VERY LOW-DENSITY RESIDENTIAL SITES			
402-031-26	RS-12,000	0.17	1
402-031-26	RS-12,000	0.10	1
Subtotal		0.27	2
GRAND TOTAL		25.38	273
Note: RS-6,000 = minimum lot size of 6,000 s.f.; RS-12,000 = minimum lot size of 12,000 s.f.; RM-2,500 = minimum lot size of 2,500 s.f.; RM-1,000 = 6,000 s.f. per 4 dwelling units plus 1,000 s.f. per each additional Source: City of Eureka; J. Laurence Mintier & Associates			

Downtown Residential Sites

In addition to the 273 potential units that can be accommodated by vacant, residentially-zoned sites, Eureka has a significant potential for residential development in its Downtown. According to a survey completed in December 1992 by City staff, Downtown Eureka has space in existing commercial and office buildings sufficient to accommodate 219 units of high-density residential use. The *Eureka Zoning Ordinance* allows residential use in these buildings by right (i.e., without a use permit).

The Redevelopment Agency has participated in the conversion of upper-story commercial space into apartments in at least eight different locations in Downtown and Old Town Eureka using the HUD 312 Program. Approximately 67 new apartments have been created since 1977 in converted upper-story commercial space through this participation. In addition, the Redevelopment Agency has rehabilitated many existing upper-story apartments in the project area.

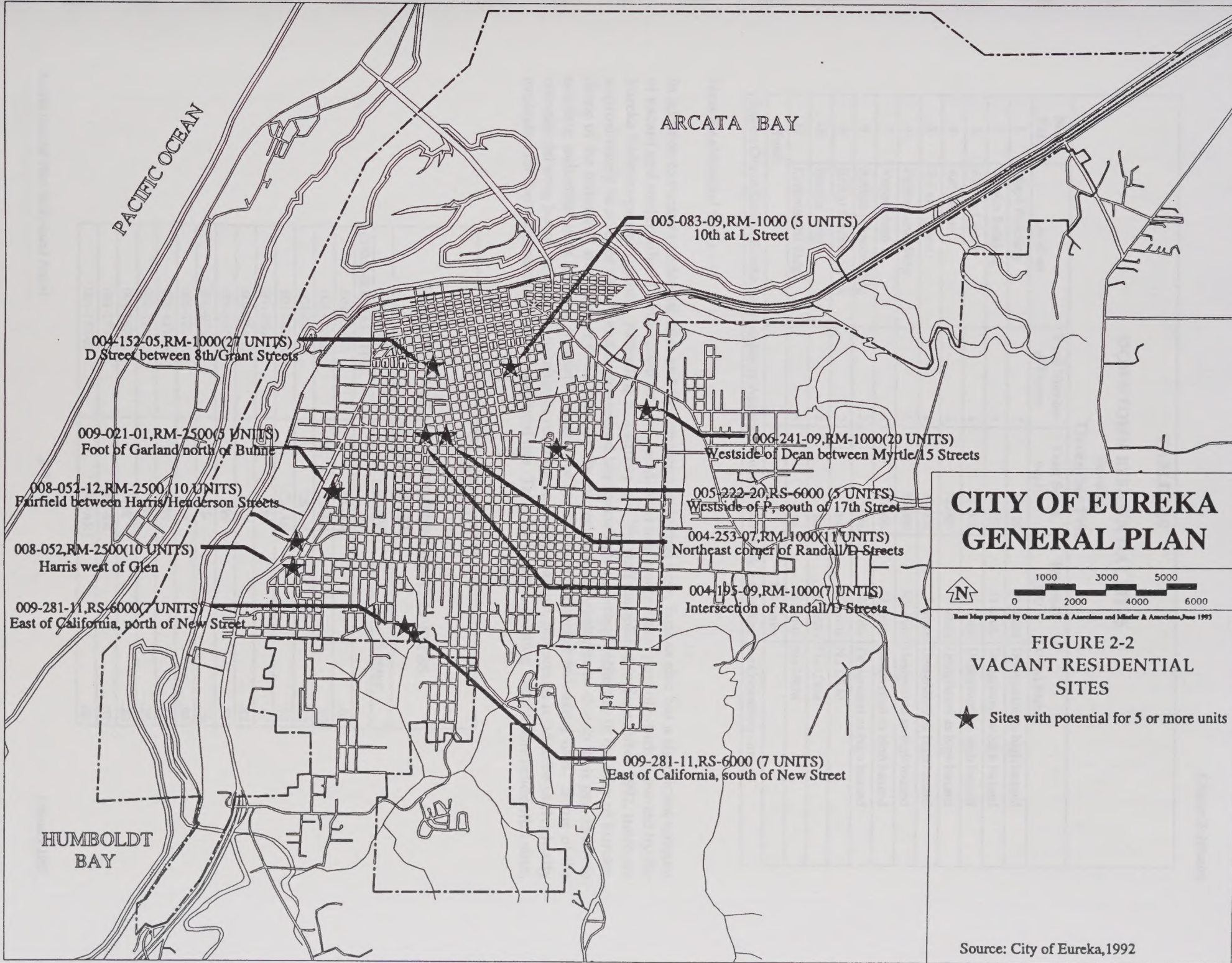
Table 2-20 summarizes the location and amount of vacant upper-story space available for high-density residential use and the potential for residential development in this space. Figure 2-3 shows the location of each Downtown residential site.

Of the 11 buildings listed in Table 2-20, 8 require seismic retrofitting, and the cost of retrofitting buildings for seismic safety can be prohibitive without government assistance. In January 1993, the City applied for 1993 HOME Program funds for seismically retrofitting three of these buildings and converting their upper stories for residential use, but their application was denied by HCD. The City will probably reapply for HOME funds in upcoming cycles. In addition to the retrofitting option, property owners have the option of demolishing unreinforced masonry structures (URM) to facilitate development on the site, an action that in some cases may be less costly than retrofitting URM buildings to meet seismic safety standards.

PACIFIC OCEAN

ARCATA BAY

HUMBOLDT BAY



004-152-05, RM-1000 (27 UNITS)
D Street between 8th/Grant Streets

005-083-09, RM-1000 (5 UNITS)
10th at L Street

009-021-01, RM-2500 (5 UNITS)
Foot of Garland north of Buhrle

006-241-09, RM-1000 (20 UNITS)
Westside of Dean between Myrtle/15 Streets

008-052-12, RM-2500 (10 UNITS)
Fairfield between Harris/Henderson Streets

005-222-20, RS-6000 (5 UNITS)
Westside of P, south of 17th Street

008-052, RM-2500 (10 UNITS)
Harris west of Glen

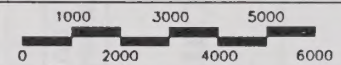
004-253-07, RM-1000 (11 UNITS)
Northeast corner of Randall/D Streets

009-281-11, RS-6000 (7 UNITS)
East of California, north of New Street

004-195-09, RM-1000 (7 UNITS)
Intersection of Randall/D Streets

009-281-11, RS-6000 (7 UNITS)
East of California, south of New Street

CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Minkler & Associates, June 1993

FIGURE 2-2
VACANT RESIDENTIAL
SITES



Sites with potential for 5 or more units

Source: City of Eureka, 1992

TABLE 2-20

DOWNTOWN RESIDENTIAL SITES
Eureka
December 1992

Map Ref.	Location	Total Number of Floors	Total Space (sq.ft.)	Potential # DU	URM Status
1	Lloyd Building	3	15,120	22 units	Designated as high hazard
2	Carson Building	4	20,250	19 units	Designated as high hazard
3	F at 2nd Street	4	27,000	26 units	Designated as high hazard
4	Art Center	2	12,000	17 units	Designated as high hazard
5	3rd at F Street	2	15,000	7 units	Designated as high hazard
6	Professional Bldg	5	33,000	40 units	Designated as high hazard
7	Vance Hotel	4	30,000	43 units	Designated as high hazard
8	Arthur Johnson Bldg	2	na	10 units	Designated as high hazard
9	E/F at 5th/6th Street	2	na	10 units	No URM
10	Heuers Bldg	2	na	5 units	No URM
11	Commercial Bldg	4	na	20 units	No URM
Total				219 units	

Source: City of Eureka; Eureka Redevelopment Agency; J. Laurence Mintier & Associates; The Consulting Group

Non-Residential Sites

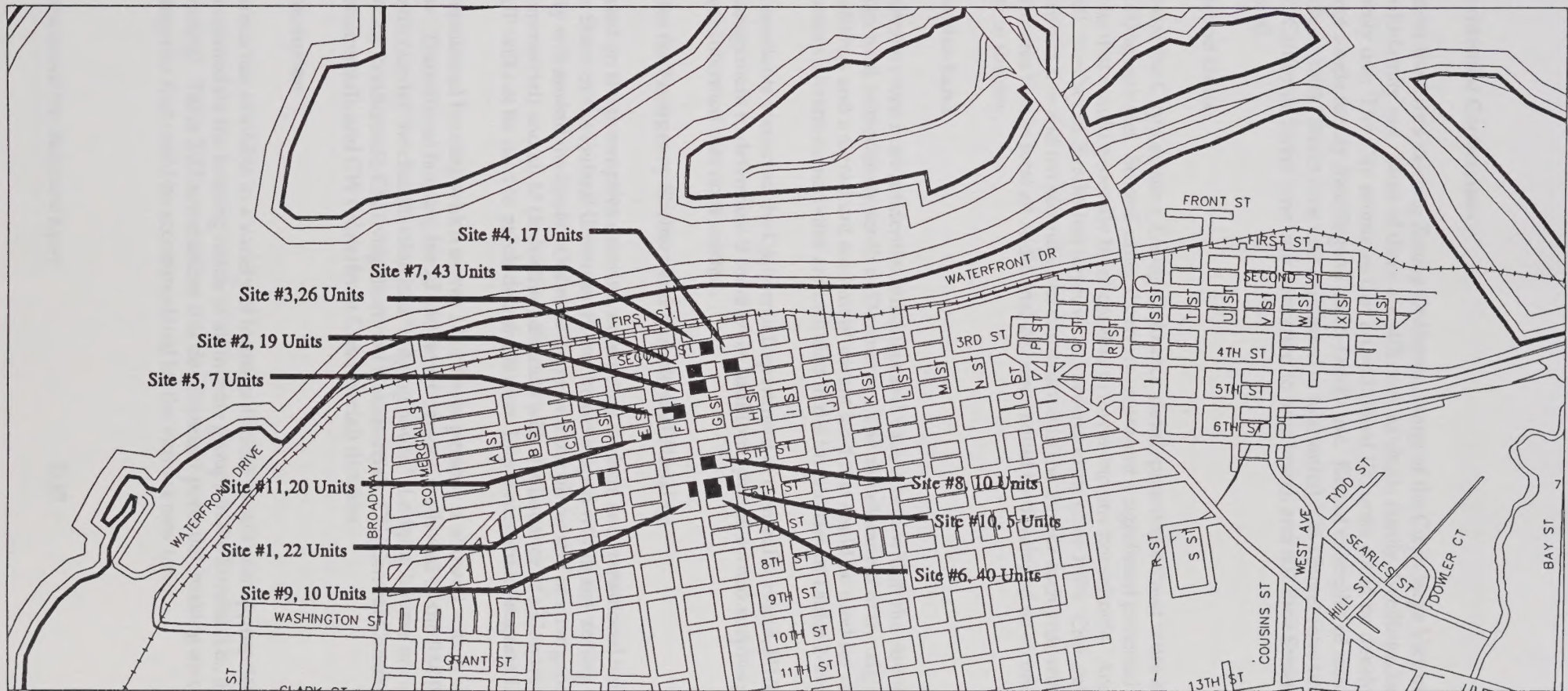
In addition to vacant residential sites and Downtown residential sites, Eureka also has a significant amount of vacant and underutilized land zoned for non-residential use, a significant part of which is owned by the Eureka Redevelopment Agency. According to a survey by City staff completed in September 1992, there are approximately 56 acres of vacant and underutilized land zoned for non-residential use in the City of Eureka. None of the industrial sites appear to be appropriate for residential development due to their proximity to existing industrial uses and the possible presence of toxics left from earlier industrial uses. Some of the commercial sites, however, may be suitable for rezoning to residential use, but would need to be individually evaluated for their appropriateness for residential use. Table 2-21 shows existing vacant non-residential sites.

TABLE 2-21

EXISTING VACANT NON-RESIDENTIAL SITES
September 1992

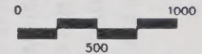
Parcel #	Zoning	Acreage
COMMERCIAL SITES		
001-034-01	CS-AR	.05
001-042-06	CS-AR	.10
001-042-08	CS-AR	.12
001-042-10	CS-AR	.15
001-054-20	CW	.47
001-054-22	CW	.42
001-062-08	CW	.61
001-071-02	CS	.30
001-121-01	CW	.08
001-121-18	CW	.41
001-121-23	CW	.35
001-162-12	OR	.20
001-173-06	OR-AR	.07
001-173-07	OR-AR	.08

Parcel #	Zoning	Acreage
002-064-02	CS	.30
002-074-04	CS	.18
002-081-06	CS	.23
002-104-04	CS	.15
002-191-13*	CN	1.43
003-141-01	CS	.19
003-143-02	CS	1.54
003-143-06	CS	.68
003-143-08	CS	1.73
003-171-09	CS	.77
003-171-11	CS	.39
003-182-11	MG	1.92
004-151-22	CC-AR	.21
004-152-02	CS-AR	.12
004-152-03	CS-AR	.13
008-101-36	CS	.16
009-242-07	CN	.43
302-171-40	CS/PD	.70
001-171-41	CS	.44
Subtotal		15.26
INDUSTRIAL SITES		
001-013-09	CW	.15
001-024-01	ML	.21
001-161-07*	OR	.17
001-162-08*	OR	.37
002-053-01	CS	.21
002-054-05	CS	.05
002-083-01	CS	.23
002-083-02	CS	.08
002-121-02	CS	.12
002-121-03	CS	.08
002-231-15	CW	.66
002-231-18	CW	.09
002-231-22	CW	.97
003-031-07	ML	.20
003-041-08	CS	.99
003-062-17, 19*	CW	8.5
003-062-21*	MC	5.0
003-062-23*	MC	4.5
003-082-18*	MG	2.32
003-082-23*	MG	5.5
003-172-01*	MG	.67
003-172-02*	MG	.67
003-121-04	ML	.13
003-121-23	ML	.19
003-142-05	MG	.14
007-061-06 and 007-071-14*	MC	7.5
014-131-10	CS	.57
014-141-06	CS	.63
Subtotal		40.90
GRAND TOTAL		56.16
Note: *Owned by the Eureka Redevelopment Agency		
Source: City of Eureka; J. Laurence Mintier & Associates		



■ Residential site location

CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Minister & Associates, June 1991

**FIGURE 2-3
DOWNTOWN
RESIDENTIAL SITES**

Source: City of Eureka, 1992

Residential Conversions

Under the City's existing *Zoning Ordinance*, many of the City's large Victorian-era houses are zoned for multi-family use. Most of these are still used as single family dwellings, but could be converted to multi-family use. The City estimates that an additional 100 units could be developed through the conversion of large single family dwellings to multi-family use. Recent examples of residential conversions in Eureka include 1303 I Street (one unit converted to four units), 923 J Street (one unit converted to three units), 817 California Street (one unit converted to four units), and 807 Pine Street (one unit converted to two units).

Second Units

Under the City's existing *Zoning Ordinance*, development of second units is permitted on lots as small as 6,000 square feet. Second units, therefore, represent a significant potential for development of smaller units that would generally be affordable to lower-income households. According to research by City staff, the City of Eureka has approved 11 second units since 1990. City staff estimates there are also between five and ten second units constructed in the Eureka each year without City approval. The City estimates that in total an additional 200 units could be developed as second units on existing residential lots in the city.

Surplus Land

Caltrans owns both residential buildings and vacant land within the now-abandoned Eureka Freeway alignment immediately south of Downtown. The abandonment of the alignment left many existing buildings and a significant amount of vacant land that could be used for residential development. The vacant Caltrans-owned sites are included in the inventories in Tables 2-19 and 2-21.

Consultants contacted the California Department of General Services, HUD, and the U.S. Bureau of Land Management to determine if there were additional public-owned surplus public lands in Eureka, and were informed that none existed.

Sites for Emergency Shelters and Transitional Housing

Based on the preemptive doctrine, emergency shelters and transitional housing operated by the County, the State, or the Federal Government can be developed within any zoning district within Eureka. The City will amend the *Zoning Ordinance* to permit the placement of emergency shelters in the CS (Service Commercial) and all M (Industrial) districts with the issuance of a Conditional use permit (CUP). The CUP will not be used to preclude a shelter (see Implementation Program I.15).

Transitional housing which serves 12 or fewer persons is allowed within any residential district per state law. Transitional housing for 15 and fewer persons is allowed in the RM (Multi-Family) residential district under the classification of a "lodging house." Lodging houses are also permitted uses in the OR (Office Residential), CN (Neighborhood Commercial), CC (Central Commercial), CS (Service Commercial), and CW (Waterfront Commercial) districts.

Conclusion

Eureka has available in a variety of forms, sufficient vacant and appropriately-zoned sites to accommodate the housing needs of all income groups in the Eureka (i.e., approximately 790 units of new housing). Table 2-22 summarizes this development potential, making assumptions about the income categories that could be accommodated by the various new units.

TABLE 2-22

SUMMARY OF ADEQUATE SITES
Potential Number of Units by Income Category
Eureka

Type of Site	Very Low	Low	Moderate	Above Moderate	Total
Existing, Vacant Residential Sites					
High-Density Sites	97	0	0	0	97
Medium-Density Sites	0	35	35	0	70
Low Density Sites	0	0	0	104	104
Very Low Density Sites	0	0	0	2	2
Downtown Residential Sites	120	99	0	0	219
Residential Conversion	0	0	100	0	100
Second Units	0	200	0	0	200
Total	217	334	135	106	792
HCAOG Fair Share Allocation	209	128	51	374	762
Deficit/Surplus	+ 8	+206	+84	-268	+30

Source: City of Eureka; J. Laurence Mintier & Associates

According to Table 2-22, the City of Eureka has adequate sites to accommodate the housing needs of all income groups in Eureka except for the above-moderate category. In the above-moderate category the city lacks sites for 268 units, but in the aggregate the city has adequate sites to accommodate 28 units beyond its fair share housing allocation. If a site can accommodate moderate-income units, it can also accommodate above moderate-income units. Accordingly, units assigned to the low and moderate-income categories in Table 2-22 can be reassigned to the above moderate-income category; the result would be sufficient sites in all income categories.

AVAILABILITY OF SERVICES

Wastewater Treatment

The City of Eureka completed construction of a new wastewater treatment facility in 1984 that serves Eureka and the surrounding area. According to the City's Utility Department, the wastewater treatment plant currently treats 4.9 million gallons per day (MGD) of wastewater (average dry weather flow) and has the capacity to treat up to 8.0 MGD of wastewater without expansion. Furthermore, the plant is designed to facilitate expansion up to 12.0 MGD of wastewater, should the need arise in the future. Current treatment plant capacity is sufficient to accommodate Eureka's growth at its current rate of growth (i.e., the growth rate experienced between 1980 and 1990) through 2003.

Water Availability

Water supply has never been a problem in Eureka. The City of Eureka currently has a contract supply with Humboldt County Municipal Water District (HBMWD) for 8 million gallons per day (MGD); in 1989, the City was using only 4 MGD. Conservative estimates for Eureka's consumption indicate that water usage will increase to only 5.28 MGD by the year 2010. As a result, water usage for Eureka is expected to remain well below the current contract limit.

LAND USE CONTROLS AND GOVERNMENTAL CONSTRAINTS

INTRODUCTION

While local governments have little or no influence on such market factors as interest rates, their policies and regulations do affect both the amount of residential development that occurs and the cost of housing. As described in other sections of this chapter, the City has taken and will continue to take a wide variety of actions aimed at providing housing opportunities and ensuring housing affordability. Since governmental actions can constrain development and affordability of housing, state law requires that the housing element "address and, where appropriate and legally possible, remove governmental constraints to the maintenance, improvement, and development of housing" (*Government Code § 65583 (c) (3)*).

The principal documents setting forth City policies and standards for residential development are the *General Plan*, the *Local Coastal Plan*, and the *Zoning Ordinance*. Other areas of regulation that affect housing cost include the City's processing procedures and development and planning fees.

GENERAL PLAN AND LOCAL COASTAL PLAN

Eureka's principal land use policy document is the *General Plan*. The current *General Plan* was adopted in 1977, and the City is currently (1993) in the process of updating the document. The *General Plan* has five land use designations that are primarily residential. These are as follows:

- Rural: This category provides for single family detached residences up to a density of 1 dwelling unit per net acre. Minimum lot size is 42,000 square feet.
- Estate: This category provides for single family detached residences at a density of 2 to 3 dwelling units per net acre. Minimum lot size is 12,000 square feet.
- Suburban: This category provides for single family residences at a density of 4 to 7 dwelling units per net acre. Minimum lot size is 6,000 square feet.
- Medium Density: This category provides for attached single family and multi-family residences at a density of 8 to 17 dwelling units per net acre. Minimum lot size is 2,500 square feet.
- High Density: This category provides for multi-family residences at a density of 18 to 43 dwelling units per acre. Minimum lot size is 1,000 square feet.

These residential land use designations provide for a wide range of housing types, from single family detached dwelling units to multi-family apartments and condominiums. Given the prevailing housing market conditions, these densities can accommodate the housing needs of all household income levels.

In addition to the *General Plan*, Eureka has an adopted and Coastal Commission-certified *Local Coastal Plan (LCP)* which regulates development for approximately 1,500 acres of land that lie within the Coastal Zone. The *LCP* contains residential land use designations and allowable residential densities similar to those in the *General Plan*. In addition, state law regulates the demolition of existing low- and moderate-income dwelling units and requires the inclusion of low- and moderate-income housing in new housing development within the Coastal Zone (*Government Code § 65590*).

ZONING

Under state law, cities and counties have broad latitude in establishing zoning standards and procedures. Outside of a general requirement for consistency with the general plan, requirements for open space zoning, and several requirements governing residential zoning, state law establishes only broadly the scope of zoning regulation and sets minimum standards for its adoption and administration.

The *Zoning Ordinance* contains three basic residential zones. These are the RS-6,000 (One-Family Residential) District, the RM-2,500 (Multi-Family Residential) District, and the RM-1,000 (Multi-Family Residential) District. Multi-family housing is allowed by right (i.e., without conditional use permit) in the RM-2,500 and the RM-1,000 Districts. In addition to these residential zones, multi-family residential uses are allowed in the OR (Office and Multi-Family Residential) District, the HM (Hospital-Medical) District, and most C (Commercial) Districts. Very low-density single family residential uses are also allowed in the A (Agricultural) District. Table 2-23 summarizes the development standards for each residential district.

TABLE 2-23

DEVELOPMENT STANDARDS Eureka

Zoning District	Minimum Lot Area per Dwelling	Allowable Floor Area Ratio	Maximum Height	Minimum Front Yard Setback	Minimum Rear Yard Setback	Combined Side yard Setback	Second Units Allowed
RS-12,000 (Coastal Zone only)	12,000 sf.	50%	35 ft.	15 ft.	25 ft.	10 ft.	yes
RS-6000	6,000 sf.	50%	35 ft.	15 ft.	25 ft.	10 ft.	yes
RM-2,500	2,500 sf.	50%	35 ft.	15 ft.	20 ft.	10 ft.	no
RM-1,000	6,000 sf. per 4 dwelling units plus 1,000 sf. per each additional dwelling unit	100%	75 ft.	15 ft.	20 ft.	10 ft.	no
CN	n/a	200%	35 ft.	n/a	n/a	n/a	no
CC	n/a	500%	100 ft.	n/a	n/a	n/a	no
CS	n/a	120%	35 ft.	n/a	n/a	n/a	no
CW	n/a	250%	100 ft.	n/a	n/a	n/a	no
OR	1,000 sf.	100%	100 ft.	15 ft. if not located above non-residential use	20 ft. if not located above non-residential use	10 ft. if not located above non-residential use	no
HM	6,000 sf. per 4 dwelling units plus 1,000 sf. per each additional dwelling unit	100%	25 ft.	15 ft.	20 ft.	10 ft.	no
A	5 acres	n/a	35 ft.	30 ft.	30 ft.	30 ft.	no

Source: City of Eureka Zoning Ordinance

On- and Off-Site Improvements

Eureka requires the installation of on-site and off-site improvements for residential development. On-site improvements typically include streets, curb, gutter, sidewalk, and utilities and amenities such as landscaping, fencing, streetlights, open space and park facilities, and public access routes for sites within the coastal zone.

Off-site improvements are also often required as part of the approval process for residential development. Off-site improvement costs for large developments can include the construction of roadway segments, bridges, sewage collection trunk lines, water systems improvements, public facilities such as fire substations, and drainage improvements.

Smaller infill projects typically are only required to improve adjacent street frontages, including the installation of curb, gutters, and sidewalks. In most of Eureka's urbanized area, streets and other improvements are already in place. Therefore, development of Eureka's vacant residential infill sites requires few or no frontage or off-site improvements.

Density Bonus

As of January 1, 1990, state law requires that a density bonus of 25 percent and one other concession (e.g., fee waiver or priority processing) be granted to developers who build 20 percent of their units for lower income households, 10 percent for very low income households, or 50 percent for low income elderly households. State law now also requires developers to guarantee continued affordability for very low- and low-income units for at least 30 years. Eureka does not currently have a density bonus provision in its *Zoning Ordinance*.

Coastal Development Permit Procedures

In addition to standards outlined above, Eureka has a separate set of zoning ordinance regulations for the Coastal Zone. With minor exceptions, however, development standards for residential development within the Coastal Zone are the same as outside the Coastal Zone. In terms of permit procedures, development within the Coastal Zone is required to obtain a Coastal Development Permit in addition to approvals otherwise required. Environmental analysis is required for all development in the Coastal Zone, and drainage control plans are required for some designated sites.

Secondary Dwelling Units

A secondary dwelling unit is an additional self-contained living unit, either attached or detached from the primary residential unit on a single lot. It has cooking, eating, sleeping, and full sanitation facilities. To encourage establishment of secondary dwelling units on existing developed lots, state law requires cities and counties to either adopt an ordinance based on standards set out in the law authorizing creation of secondary dwelling units in residentially zoned areas, or where no ordinance has been adopted, allow secondary dwelling units by use permit if they meet standards set out in the law. Local governments are precluded from totally prohibiting secondary dwelling units in residentially-zoned areas unless they make specific findings (*Government Code* § 65852.2). Secondary dwelling units can be an important source of affordable housing since they can be constructed relatively inexpensively and have no associated land costs. Also, secondary dwelling units can provide supplemental income to the homeowner, thus allowing the elderly to remain in their homes or moderate-income families to afford houses.

Eureka adopted a Second Unit Ordinance in 1990 that provides for second units with a conditional use permit on lots that are at least 6,000 square feet in size and have a minimum width of 60 feet and a minimum depth of 100 feet. One additional parking space is required for the second unit, and all height, setback, and lot coverage requirements that apply to the zone in general must still be complied with.

Parking Requirements for Residential Uses

The *Zoning Ordinance* requires two parking spaces for each dwelling in the RS Districts, one of which must be located in a garage or carport. In all other residential districts, the *Zoning Ordinance* requires one and one-half parking spaces per dwelling.

Manufactured Housing

State law limits the extent to which cities and counties can regulate the installation of manufactured homes, including mobile homes and mobile home parks. *Government Code* § 65852.3 requires that cities allow installation of certified manufactured homes on foundation systems on lots zoned for conventional single-family residences. This section and *Government Code* § 65852.4 generally require that same development regulations that apply to conventional homes also apply to manufactured homes. *Government Code* § 65852.7 deems mobilehome parks to be a permitted use in all areas planned and zoned for residential use.

In Eureka, mobilehomes are allowed in all residential districts in the city subject to the same development regulations as other types of housing in the same zone.

Site Plan Review and Architectural Review

Eureka's *Zoning Ordinance* requires site plan and architectural review of development in zones overlaid by the AR (Architectural Review Combining District) or PD (Planned Unit Development Combining District) districts. Site plan review includes examination of the project to insure that structures are "properly related to their sites and to surrounding sites and to traffic circulation in the vicinity." Site plan review also seeks to insure that parking areas, walkways, and landscaping are appropriate. Architectural review is limited to exterior design, materials, textures, and colors and does not include elements that do not effect the exterior appearance of the structure.

DEVELOPMENT PROCESSING PROCEDURES, STANDARDS, AND FEES

Another way in which local governments can inadvertently constrain the development of affordable housing is through the imposition of development approval procedures, permit fees, building code requirements, and lengthy permit processing times. This section addresses the relationship of development fees, processes, and standards to the production of housing.

Permit Processing Procedures

Housing development projects in Eureka are subject to various review procedures including: environmental review, zoning, subdivision review, design review, use permit control, and building permit approval. Table 2-24 shows typical permit processing times for various review procedures in the City of Eureka.

TABLE 2-25		
APPLICABLE BUILDING AND HOUSING CODES		
Eureka		
1992		
Code Name	Code Date	Amendments*
Uniform Building Code	1991	No significant amendments
Uniform Building Code Standards	1991	No significant amendments
Uniform Fire Code Standards	1991	No significant amendments
Uniform Fire Code	1991	No significant amendments
Uniform Administrative Code	1991	No significant amendments
Uniform Plumbing Code	1991	No significant amendments
Uniform Mechanical Code	1991	No significant amendments
Uniform Housing Code	1991	No significant amendments
Uniform Sign Code	1991	No significant amendments
National Electric Code	1990	No significant amendments
Uniform Code of Building Conservation	1991	No significant amendments
Note: *All codes are adopted with amendments mandated by the State of California.		
Source: City of Eureka		

Enforcement of the adopted building and housing codes is focused primarily on review of new construction plans to ensure that they comply with minimum health and safety standards. Application to existing construction is generally limited to correction of violations brought to light through complaints. Violation correction typically results in code compliance without adverse effect upon the availability or affordability of the dwelling units involved. There has been no documented displacement of persons due to code enforcement in recent years.

Permit Fees

The City collects fees to offset the costs of permit processing, inspections, environmental review, and the provision of services such as water, sewers, and storm drains. These fees are generally assessed on the basis of the number of dwelling units in residential development. Fees charged for building permits are based on the construction values as prescribed by the Uniform Building Code. When raising fees, the City complies with all applicable state laws. Table 2-26 shows development fees for Eureka as of August 1992.

TABLE 2-26		
DEVELOPMENT FEES ¹		
August 1992		
Item	Responsible Office	Costs
Building Permit ²	Building Department	\$540
Sewer Lateral	Engineering	300
Sewer Connection	Engineering	2,000
Water Connection	Engineering	510
Total		\$3,350.00
Notes: ¹ Fees for construction of a 1,340 s.f. house with 487 s.f. garage		
² Includes building permit fee, plan check fee, mechanical fees, plumbing fees, electric fees, and state seismic fees.		
Source: City of Eureka		

Development fees have generally been on the rise in California, but fees levied in Eureka are considerably lower than fees in other parts of the state. In 1991, the Building Industry Association of Northern California completed a survey of development fees in 56 communities in 14 counties in Northern and Central California. This survey reported that on average, fees rose 49 percent since a similar survey in 1987 (both surveys were based on hypothetical development of 100 single-family detached homes on a 25-acre site, each home 1,500 square feet with three bedrooms and two baths). Average development fees for the San Francisco Bay Area in 1991 were \$13,784.

Conclusion

The various land use regulations, improvement requirements, permit procedures, and development fees that are in force in Eureka generally provide for the orderly and economical development of housing. Land use regulations provide for a wide variety of housing types at a range of densities; development and construction standards are typical; and development fees in Eureka are substantially below fees in Northern and Central California in general.

ENERGY COSTS AND CONSERVATION

Utility costs significantly increase basic housing costs, with space heating and water heating the biggest energy consumers. Most renters in Eureka (90 percent) pay for at least one utility in addition to basic rent. Utility gas is the predominant form of energy used to heat houses in Eureka. Table 2-27 shows 1990 Census tabulations of the type of fuel used for house heating.

TABLE 2-27		
HOUSE HEATING ENERGY USE		
Eureka		
1990		
Energy Type	Number of Housing Units	% Total
Utility Gas	9,056	81%
Bottled/Other Gas	130	1%
Electricity	1,076	10%
Fuel Oil, Kerosine, Etc.	3	less than 1%
Coal or Coke	0	less than 1%
Wood	778	7%
Solar Energy	14	less than 1%
Other Fuel	16	less than 1%
No Fuel Used	35	less than 1%
Total	11,108	100%
Source: U.S. Census Bureau; J. Laurence Mintier & Associates		

The Pacific Gas and Electric Company (PG&E) offers a residential conservation service audit at customer request. The audit analyzes, among other things, home insulation, weatherstripping, caulking and window insulation for heat loss. The program also identifies other resource conservation measures, such as installation of low-flow shower heads, conversion from fluorescent to incandescent lighting, and replacement of gas pilot lights with electric ignition. Residents can pay for energy-saving devices with interest-free loans from PG&E or obtain reimbursement from PG&E through its "cash-back" program.

NON-GOVERNMENTAL CONSTRAINTS

INTRODUCTION

The availability of housing is strongly influenced by market factors over which local government has little or no control. State law requires that the housing element contain a general assessment of these constraints. This assessment can serve as the basis for actions which local governments might take to offset the effects of such constraints. The following paragraphs briefly summarize land costs, construction costs, and financing.

LAND COSTS

Costs associated with the acquisition of land include the market price of raw land and the cost of holding land throughout the development process. These costs can account for as much as half of the final sales prices of new homes in very small developments or in areas where land is scarce. Among the variables affecting the cost of land are its location, its amenities, the availability of public services, and the financing arrangements made between the buyer and seller. According to one housing program specialist familiar with the area, land costs currently (1992) amount to \$3 to \$4 per square foot in Eureka.

CONSTRUCTION COSTS

According to one local developer, total construction cost for a 1,600 square feet home with basic amenities is approximately \$70 to \$75 per square foot. This cost includes architectural, engineering, permits, fees, financing, and all other costs except land.

COST AND AVAILABILITY OF FINANCING

The cost and availability of capital financing affect the overall cost of housing in two ways: first, when the developer uses capital for initial site preparation and construction and, second, when the homebuyer uses capital to purchase housing.

The capital used by the developer is borrowed for the short-term at commercial rates, which are considerably higher than standard mortgage rates. Commercial rates nonetheless drop when the overall market rates decrease, so low interest rates have a positive effect on the housing construction market. According to staff at the Humboldt Board of REALTORS®, construction financing is readily available to developers building in any Eureka neighborhood. Construction financing for multi-family construction, however, is difficult to obtain. This lack of construction financing for multi-family housing poses a significant constraint on the production of affordable housing in Eureka as it does in California and the nation in general.

Home ownership can be constrained by high mortgage interest rates that can make qualifying for a loan difficult. High interest rates, however, are not currently a problem. Interest rates in June 1992 were relatively low, at about 8.5 percent for a 30-year, fixed-rate loan (FIRM). Introductory rates for adjustable rate mortgages (ARMs) are very low at about 5.95 percent. Lenders are also offering new financing packages that provide a balloon payment mortgage for five or seven years, the terms of which are renegotiated at the end of the term to another fixed rate which is based on current mortgage rates. These types of mortgages have the advantage of being fixed-rate and can be offered at lower rates than the conventional 30-year mortgage. The disadvantage is that one may end up paying a higher interest rate at the end of the fixed-rate term. Rates for these types of mortgages were about 7.0 percent in June 1992.

Table 2-28 shows the price of a house affordable to the moderate-income family in Eureka at various interest rates.

TABLE 2-28			
PRICE OF HOUSE AFFORDABLE TO MODERATE-INCOME FAMILY BY INTEREST RATE Eureka			
Interest Rate	Mortgage ²	Down Payment ³	Price of House Affordable to Moderate-Income Family
7.0%	\$133,586	\$14,843	\$148,429
7.5%	127,107	14,123	141,230
8.0%	121,122	13,458	134,580
8.5%	115,585	12,843	128,428
9.0%	110,456	12,273	122,728
9.5%	105,696	11,744	117,440
10.0%	101,274	11,253	112,526
10.5%	97,159	10,795	107,954
11.0%	93,324	10,369	103,694
11.5%	\$89,746	\$9,972	\$99,718
Moderate Income Limit = \$35,550 ¹			
Notes: ¹ Up to 120 percent of area median income			
² Assumes a 30-year mortgage term			
³ Assumes down payment is 10 percent of price			
Source: HUD; J. Laurence Mintier & Associates			

At an interest rate of 7 percent, the price of a house affordable to the moderate-income family in Eureka is approximately \$148,429. At 9 percent, the price of an affordable house drops to approximately \$122,728. At 11.5 percent, the price drops to approximately \$99,718.

Table 2-29 below shows typical costs associated with buying a home.

TABLE 2-29	
TYPICAL HOUSING COSTS (\$130,000 Home) Eureka	
Sales Price	\$130,000
Closing Costs	4,113
Down Payment @ 10%	13,000
Mortgage Balance	117,000
Monthly P&I @ 8.5% (30 years)	900
Annual Insurance*	236
Taxes*	1,494
Total Annual Carrying Costs	12,530
Income Needed @ 30% of Gross)	\$41,766
Note: *Varies with jurisdiction	
Source: J. Laurence Mintier & Associates	

CONCLUSION

Eureka residents in all income categories are generally well served by local financial institutions. Discussions with City staff and local developers, however, indicate that financing for multi-family

construction is hard to obtain. To the degree that lower-income households depend on the affordability provided by multi-family housing, this group is currently under-served by local and regional financial institutions. Financing for single family construction is readily available in all areas of the city. The Eureka Redevelopment Agency supplements the financial services otherwise provided by private financial institutions by providing low-interest grants and loans for housing rehabilitation to lower-income households in Eureka.

CURRENT AND PAST HOUSING PROGRAMS IN EUREKA

EXISTING HOUSING PROGRAMS

Redevelopment Agency

The Eureka Redevelopment Agency is the primary vehicle through which the City implements its housing programs. As such, the agency administers programs for the redevelopment project area programs that are citywide in scope. Under state law, the Redevelopment Agency is required to set aside 20 percent of all tax increment revenue from the project area to establish a Low and Moderate Income Housing Fund (LMIHF) and to prepare an Affordable Housing Strategy to utilize LMIHF funds in conformance with state law and the Housing Element of the Eureka's General Plan. Eureka's Affordable Housing Strategy was prepared in September 1991 by the Eureka Housing Advisory Board and was designed to improve and preserve the community's supply of low- and moderate-income housing.

In addition to the LMIHF fund, the Redevelopment Agency and the City created the Eureka Residential Assistance Program in 1976 and since that time have utilized various federal, state, and local housing resources including the Community Development Block Grant Program, Section 312 Rehabilitation Loan Program, Section 202 Elderly New Construction Program, and U.S. Housing and Urban Development (HUD) Rental Rehabilitation Program Funds.

Currently, Redevelopment Agency efforts are focused on first-time homeowner assistance and housing rehabilitation. The Redevelopment Agency is currently assisting first-time homebuyers through its Downpayment Assistance Program (\$150,000 in loans to first-time homebuyers since 1992). The Redevelopment Agency is also currently considering two Keyser Marston reports published in June 1992 that evaluate the feasibility of a new construction first-time home ownership program for Eureka. This program would broaden the Redevelopment Agency's role to include single-family infill construction in the Downtown/Old Town area. In terms of rehabilitation, the Redevelopment Agency is assisting renter- and owner-occupied housing rehabilitation through its Full-Scale Neighborhood Improvement Organization Program (\$55,000 in grants since December 1991), the HUD Rental Rehabilitation Program, and the CDBG Housing Rehabilitation Program.

The Redevelopment Agency's Low and Moderate Income Housing Fund (i.e., 20 percent set-aside fund) is expected to receive approximately \$3,532,000 for the period FY 1992 through FY 1997. According to the Low and Moderate Income Housing Fund Strategy, published in 1991, 50 percent of this money will be dedicated to rehabilitation efforts, 30 percent will be dedicated to new housing construction, and 20 percent will pay for administrative services. Table 2-30 shows a summary forecast of housing set-aside funds for the years 1986 through 2004.

TABLE 2-30
SUMMARY FORECAST OF HOUSING SET-ASIDE FUNDS
Eureka Redevelopment Agency
1986 through 2004

Fiscal Year Ending	Projected Tax Increment Revenue	Annual Housing Set-Aside	Accrued Interest* on Set-Aside Fund Deficit	Cumulative Housing Set-Aside
1986 to 1992	--	--	--	\$2,414,424
1992	\$2,099,350	\$419,870	\$96,685	\$2,930,979
1993	2,200,700	440,140	102,798	3,473,917
1994	2,310,735	462,147	109,262	4,045,326
1995	2,426,272	485,254	116,154	4,646,734
1996	2,547,585	509,517	123,505	5,279,756
1997	2,674,965	534,993	131,347	5,946,096
1998	2,808,713	561,743	139,715	6,647,554
1999	2,949,148	589,830	148,646	7,386,030
2000	3,096,606	619,321	158,178	8,163,529
2001	3,251,436	650,287	168,355	8,982,171
2002	3,414,008	682,802	179,222	9,844,195
2003	3,584,708	716,942	190,829	10,751,966
2004	\$1,881,972	\$376,394	\$233,339	\$11,361,699

Note: *This column represents interest that accrues on money the Redevelopment Agency was required but failed to set aside for housing in the early years of the Redevelopment Agency.

Source: City of Eureka Redevelopment Agency

Eureka Housing Authority

Established in 1946, the Housing Authority of the City of Eureka is another important component of the City's housing efforts for very low and low-income residents. Currently, the Housing Authority owns and operates 198 federally-assisted low-income public housing units located on 11 sites throughout the city. The Housing Authority also owns and operates 51 units of Section 8 New Construction family units financed by the California Housing and Finance Agency (CHFA) on three sites. On August 12, 1993, the Housing Authority was designated a "High Performer" by the Department of Housing and Urban Development (HUD) for its outstanding management of its public housing developments. The Housing Authority administers the Section 8 Housing Assistance Payments Program within the city, which aids low-income renters by paying a portion of their rent to private landlords, not to exceed the fair market rent published by HUD. In this program, the renter pays no more than 30 percent of their gross income for rent and utilities and the Housing Authority makes up the difference. This program is comprised of 503 units under the Section 8 Certificate Program and 150 units under the Section 8 Voucher Program.

In 1991, the Housing Authority offered the Mortgage Credit Certificate (MCC) Program throughout Humboldt County. This program, which aids first-time homebuyers has helped 30 individuals and families within Eureka and 178 throughout the rest of Humboldt County.

The Housing Authority also self funds and administers a Security Deposit Letter of Credit Program. This program aids those who cannot afford a first and last month's rent and security deposit to secure private-market rental housing. The letter of credit is issued by the Housing Authority and allows for the payment of the security deposit and one month's rent over a one-year period. Should the renter move prior to the one year and not have satisfied the payment of the deposits, the Housing Authority pays what is owed to the landlord. After one year is up, the Housing Authority has no further obligation to either the renter or the landlord. This is an ongoing program.

Lastly, the Housing Authority administers the Housing Opportunities for People With Aids (HOPWA) Rental and Utility Assistance Program. Funded by the State of California, this program helps individuals who are HIV positive and in jeopardy of losing their housing or having their utilities terminated due to nonpayment, by making a one-time payment on their behalf. This program is due to end sometime in 1993.

Non-Profit Housing Development Corporation

Non-profit housing developers are an important component in an overall strategy for developing affordable housing. Non-profits can tap state and federal funds not available to public agencies and private developers, can negotiate contracts without the requirements that bind public agencies, and can play an aggressive role in initiating construction projects. For example, the Redevelopment Agency can acquire property then lease or sell property and make loans or grants to non-profit housing development corporation. The non-profit then develops and operates affordable housing projects for the Redevelopment Agency and the City. The Housing Authority could work closely with the non-profit housing development corporation to manage rental properties in conformance with the rent limitations and housing goals of the City.

Eureka is currently considering creating a non-profit housing development corporation to assist in the development and operation of very low- and low-income housing.

Mortgage Credit Certificates (MCCs)

MCCs are designed to help moderate-income home buyers qualify for home mortgages. Home purchasers who receive MCCs are entitled to an income tax credit equal to a specified percentage of the interest they pay during the tax year on the mortgage on their principal residence. This reduces the borrower's monthly payments and enables lenders to qualify people whose high debt-to-income ratio would otherwise disqualify them.

The City of Eureka, through the Eureka Housing Authority, currently administers a MCC Program which has disbursed \$350,000 in tax credits since mid-1991.

Community Development Block Grant Program (CDBG)

Through the CDBG, HUD provides grants and loans to local government for funding a wide range of community development activities. Although spending priorities are determined at the local level, the purpose of the CDBG Program is to provide adequate housing, a suitable living environment, and expanded economic opportunities for persons of low- and moderate-income. A minimum of 51 percent of the CDBG funds must be used for the support of activities that benefit low- and moderate-income persons.

Basic eligible activities include, but are not limited to: 1) acquisition and disposition of real property; 2) public facilities and improvements; 3) slum clearance activities; 4) public services; 5) interim assistance; 6) payment of non-federal share of a grant-in-aid program; 7) urban renewal completion; 8) demolition and relocation; 9) removal of architectural barriers to the physically disabled; 10) privately owned utilities; and 11) improvement of sites for assisted housing. CDBG assistance may be used for the following rehabilitation and preservation activities: 1) rehabilitation of public residential structures; 2) modernization of public housing; 3) rehabilitation of private properties; 4) temporary relocation assistance; 5) code enforcement; and 6) historic preservation. Except in limited circumstances, Community Development Block Grants may not be used for new construction of housing.

Eureka competes annually for CDBG funds through the State's Small Cities Program. The City has used CDBG funds primarily for housing rehabilitation. The City could also use these funds for infrastructure improvements and to write down land costs and site improvements for new development.

Home Investment Partnership Act (HOME Program)

The HOME Program is a new federal housing program enacted pursuant to Title II of the National Affordable Housing Act (1990). The purposes of the HOME Program are to: 1) expand the supply of decent, affordable housing for low- and very low-income families, with emphasis on rental housing; 2) increase state and local capacity to carry out affordable housing programs; and 3) provide for coordinated assistance to participants in the development of affordable low-income housing. The HOME Program funds can be used for acquisition, rehabilitation, new construction, and first-time homebuyers programs. Developers in Eureka can also apply for HOME funds on a project-by-project basis.

Eureka applied for but was denied HOME Program funds in FY 93-94. The City intends to reapply for HOME Program funds in upcoming funding cycles.

Other Program Efforts

The earlier discussion of special needs describes other housing program efforts that have been or are currently being undertaken by the City of Eureka and other agencies and organizations in the Eureka area.

ACHIEVEMENTS OF THE PREVIOUS HOUSING ELEMENT

To effectively address current housing problems in Eureka, it is useful to examine the effectiveness of past housing policies and programs. The following is an analysis of actions taken to implement the City's 1984 Housing Element.

The following four goals were adopted as part of the 1984 Housing Element:

- GOAL A:** *TO ASSIST BOTH THE PRIVATE AND PUBLIC SECTORS, WHERE NECESSARY, IN THEIR OVERALL EFFORTS TO PROVIDE A VARIETY OF HOUSING TYPES TO MEET THE NEEDS OF ALL SEGMENTS OF THE COMMUNITY.*
- GOAL B:** *TO ENCOURAGE THE MAINTENANCE AND CONTINUED IMPROVEMENT OF THE EXISTING HOUSING STOCK.*
- GOAL C:** *TO PROMOTE AMPLE OPPORTUNITY TO SECURE SAFE, SANITARY AND AFFORDABLE HOUSING FOR EVERYONE IN THE COMMUNITY REGARDLESS OF RACE, SEX AND OTHER ARBITRARY FACTORS.*
- GOAL D:** *TO ENCOURAGE ENERGY EFFICIENCY IN ALL NEW AND EXISTING HOUSING.*

The Housing Element also included policies, implementation programs, and quantified objectives which specified the maximum number of housing units that could be constructed, rehabilitated, and conserved over the time frame of the Housing Element, based upon the needs, resources, and constraints identified at the time. The objectives recognized the inability of the City to influence most factors which determine housing production, including the economy and interest rates.

The quantified objectives were organized according to two categories: those requiring a public program effort and those to be met by the private sector without public involvement. The objectives were also

organized according to the identified income levels and need. Table 2-31 shows the quantified objectives for the 1984 Housing Element.

TABLE 2-31		
QUANTIFIED OBJECTIVES FOR THE 1984 HOUSING ELEMENT		
Eureka		
Category	Program Units (rental unless otherwise specified)	Private Sector Units
New Construction		
Very Low Income	60	0
Other Income	20	40
Moderate Income	20	100 (25 owner occupied)
Above Moderate Income	0	120 (100 owner occupied)
Rehabilitation	120 (42 owner occupied)	60 owner occupied
Conservation		
Section 8	440	
Weatherization	1500	
Source: City of Eureka		

Discussion of Goals and Accomplishments

GOAL A: TO ASSIST BOTH THE PRIVATE AND PUBLIC SECTORS, WHERE NECESSARY, IN THEIR OVERALL EFFORTS TO PROVIDE A VARIETY OF HOUSING TYPES TO MEET THE NEEDS OF ALL SEGMENTS OF THE COMMUNITY.

This goal was aimed at the development of additional units within Eureka through a variety of means. The City did use a variety of means to encourage the private sector to construct new units and rehabilitate existing units (rehabilitation of existing units is included in the discussion under Goal B). For example, the City assisted a number of developers in applying for funds from the HUD 312 Program. This program was consistent with the City's policy of encouraging mixed commercial and residential uses. Between 1987 and 1990 two projects were completed using 312 funds, together with Agency funding. These projects provided a total of 16 units, all of which were also available for use by holders of Section 8 certificates. Between 1990 and 1992 two additional 312 projects were completed which provided an additional 11 affordable units.

The City also took several actions including ordinance revisions to clarify and set standards for second units and to assist in the development of mixed uses and adoption of a long-term strategy for use of the Redevelopment Agency's 20 percent set-aside.

These units were all located in Downtown and consisted of commercial uses on the first floors with the residential units on the upper floors. Besides adding units to the housing stock, the buildings were substantially rehabilitated as part of the projects. One of the buildings was identified as historically significant and the rehabilitation of the building was reviewed and approved by the State Historic Preservation Officer as well as the Federal Department of Interior's Historic Preservation Office.

Other units added by the public sector included units added as part of the rehabilitation of existing units. These units were funded with Eureka Redevelopment Agency's funds. A total of 10 units were added to the housing stock as part of the rehabilitation efforts noted (i.e., an existing structure was rehabilitated but in the process additional units were created). All of these units were affordable to low income households.

Units added to the housing stock through private means included 195 multi-family and 207 single family units (including second units). Except for those units assisted with federal, state, or Redevelopment Agency funds (or some combination of funds), the City has no way of knowing which of the private units were affordable to very low, low and moderate income households. Accordingly, the City assumes the units were all affordable to households with moderate or above moderate incomes.

Other efforts by the City to assist the private sector in the provision of housing included the adoption of a Second Unit Ordinance, which had not existed prior to the 1984 Housing Element, and the encouragement of mixed use developments in the commercial areas of Eureka. The City has been aware of second units being constructed without building permits in the past. Such units would eventually be identified through enforcement actions, when a property owner applies for other permits, or when the property is sold. The Second Unit Ordinance was adopted in 1990, and since that time 11 units have been constructed. The City estimates between five and ten second units are being constructed each year without City approval.

The Coastal Zoning Ordinance was adopted in 1985 and includes a majority of Eureka's commercial space in the Old Town area. This ordinance permits the use of upper floors in those commercial areas for residential uses. New residential units added in the Coastal Zone consist of HUD 312 projects with all units affordable to low- and moderate-income households.

In 1991 Eureka's Heritage Society, with the support of the City Council, completed an application for the creation of a Historic District in Eureka. The District includes most of Old Town and a part of Downtown Eureka. The District was approved for the National Register of Historic Places in 1992. The District designation is intended to encourage the conservation of existing structures identified as historically significant.

While Eureka has had far fewer demolitions of historic structures than other California cities, this Historic District will assist in the review of such structures prior to significant changes or demolitions. In 1990, the City Council passed a resolution requiring City review of all proposed demolitions of historical structures in the city. The City is in the process of developing an ordinance that would more specifically address the review process for changes to these buildings.

The City did not update its General Plan in 1985 as programmed in the 1984 Housing Element. Many of the tasks that were expected to be undertaken as a part of a General Plan update did not occur, including a survey of vacant parcels. As part of the work for this updated Housing Element a field survey of parcels identified by the County Assessor as being vacant, however, was completed in August and September of 1992. The City has hired a consulting firm to update the City's General Plan. The update will ensure that the remainder of the General Plan will be reviewed to maintain internal consistency with the Housing Element.

GOAL B: TO ENCOURAGE THE MAINTENANCE AND CONTINUED IMPROVEMENT OF THE EXISTING HOUSING STOCK.

The City of Eureka made significant progress towards meeting this goal. Because much of the funding available to local government (for small communities) is targeted to rehabilitation, the City applied numerous times since the 1984 for rehabilitation funding.

To support its rehabilitation efforts, the City received Community Development Block Grant funds and Rental Rehabilitation funds. The City also used the State Deferred Payment Rehabilitation Loan Program funds for its rehabilitation efforts. The Eureka Housing Advisory Board and Redevelopment Agency were involved in the application process for these grant funds as well as the project approvals for the specific projects funded.

The City designated a part of the Jefferson Neighborhood Area solely for one of its Block Grants and extended the project area in the following Block Grant application to include the remainder of the neighborhood. The Rental Rehabilitation Grant's Project Area consisted of the majority of the Core Area of the Redevelopment Project Area.

The City was also able to use Redevelopment Agency funds both as a separate funding source as well as matching funds for the state and federal funds mentioned. The specific numbers of units which were rehabilitated are enumerated in the section discussing the quantified objectives of the 1984 Housing Element.

Rehabilitation of units is difficult to track except when its done with the assistance of the grant programs outlined above. Many units were rehabilitated without program assistance during the time frame of the 1984 Housing Element, perhaps as many as were rehabilitated with assistance from state and local sources.

GOAL C: TO PROMOTE AMPLE OPPORTUNITY TO SECURE SAFE, SANITARY AND AFFORDABLE HOUSING FOR EVERYONE IN THE COMMUNITY REGARDLESS OF RACE, SEX, AND OTHER ARBITRARY FACTORS.

As a condition for receiving funding from any of the programs mentioned above, the City requires the recipients of the funding to assure they will meet the equal opportunity measures stated in each grant. The Eureka Housing Authority targeted 235 of 492 Section 8 certificates for special low-income groups which included the handicapped, disabled, and the elderly. The remainder of the certificates were used for low-income households not falling in one of the categories mentioned.

The shared housing program mentioned in the 1984 Housing Element was not accomplished. City staff is currently discussing with the Eureka Housing Authority and the Senior Resource Center the possible construction of new units to house seniors and single mothers within the same complex. Part of the complex would include daycare for children and seniors. The project is highly dependent upon the availability of funds for new construction.

GOAL D: TO ENCOURAGE ENERGY EFFICIENCY IN ALL NEW AND EXISTING HOUSING.

The City makes information concerning energy conservation available through its Building Department. As with other jurisdictions throughout the state the City enforces the requirements of the Uniform Building Code relative to energy conservation as well as the administrative requirements adopted by the California Energy Commission. Since the Eureka area has a relatively mild climate and does not experience dramatic temperature changes, even on a seasonal basis, standard insulation strategies are generally adequate for energy conservation in new construction.

The City has also worked with Redwood Community Action Agency, a local non-profit, which provides weatherization services in conjunction with Pacific Gas & Electric, the local power utility. RCAA assists lower-income households with actual building retrofits as well as coordinating assistance with utility bills. The number of units assisted by this program is included in the discussion of the Housing Element quantified objectives.

Discussion of the 1984 Quantified Objectives

The City based its 1984 quantified objectives (shown in Table 2-27) on the needs, resources, and constraints identified in the 1984 Housing Element. The City divided the quantified objectives into program units (i.e., including units assisted by the City, the Eureka Housing Authority, and non-profit housing sponsors) and private sector units (i.e., units developed without public assistance). The

quantified objectives projected a total of 100 new program units affordable to low- and moderate-income households and 260 private sector units affordable to above moderate-income households.

During the period 1984 to 1990, the Redevelopment Agency constructed 16 multi-family units with HUD 312 Program funds. Ten units were also added as part of Redevelopment Agency rehabilitation projects. No single family program units were built during the time frame of the 1984 Housing Element.

During the period 1984 to 1990, public funding for new construction was generally unavailable. High interest rates and unemployment rates in the County that exceed state levels by three to four percent dampened prospective buyers' interest in new housing units. Private developers constructed only 207 single family units and 195 multi-family units without assistance during the Housing Element time frame.

The 1984 quantified objectives projected the rehabilitation of 120 assisted units (78 which were to be rentals) and the rehabilitation of 60 private sector units. The 1984 quantified objectives also projected the conservation of 440 lower-income units through the Section 8 Program. Finally, the 1984 quantified objectives projected the weatherization of 1,500 units. The City surpassed its objectives for rehabilitation and conservation during the Housing Element time frame, rehabilitating 170 units of housing and issuing 492 Section 8 Certificates. The Redwood Community Action Agency City weatherized 1,438 housing units which amounted to 96 percent of the weatherization objective.

Table 2-32 shows housing rehabilitation activity from July 1, 1984, to January 1, 1991.

TABLE 2-32 HOUSING REHABILITATION ACTIVITY Eureka 1984 to 1991	
Program	Number of Units
Single Family Units	
ERAP (Eureka Rental Assistance Program)	33
HUD 312	1
HCD DPRLP (Deferred Payment Rehabilitation Loan Program)	2
Rental Rehabilitation	20
Total	56
Multi-Family Units	
ERAP	18
Rental Rehabilitation	96
Total	114
Source: City of Eureka	

PUBLIC PARTICIPATION PROGRAM

The City's efforts to involve all economic segments of the community in the housing element update process included meetings with the Eureka Housing Advisory Board, Eureka Planning Commission, the Homeless Task Force Coordinator, and the Executive Director of the Eureka Housing Authority. City consultants also interviewed Barbara Denny from the Humboldt County Senior Resource Center, Barbara Walser from Silvercrest Residence, Mari Glynn from Humboldt Access Project, and Susan Brown from the Humboldt County Association for Retarded Citizens. These organizations work closely with low-income persons, including homeless persons, and represent their interests. Noticed public hearings were conducted by the Planning Commission and City Council prior to adoption of the element, with meeting announcements published in the local newspaper and sent to an extensive mailing list.

GENERAL PLAN CONSISTENCY

The Housing Element includes numerous goals, policies, and implementation programs, some of which may be inconsistent with goals, policies, and implementation programs in other elements of the existing General Plan. The City of Eureka initiated a comprehensive update of its General Plan in December 1992 and is expected to complete work in early 1995. Any inconsistencies among elements or policies resulting from the adoption of this Housing Element will, therefore, be resolved during the course of the comprehensive General Plan update.

FINDINGS

- Eureka's housing stock is relatively old and in need of substantial rehabilitation. According to a City survey, there were approximately 1,663 housing units in need of rehabilitation in the city in 1990.
- Eureka had an overall housing vacancy rate of 5.4 percent in 1990. Vacancy rates in 1990 were 3.7 percent for single family housing and 9.8 percent for multi-family housing.
- Home ownership and rental is affordable to a wide range of households in Eureka. The median sale price of a single-family dwelling was approximately \$90,000 in 1992, which is below the maximum \$128,000 price affordable to the moderate-income household in Eureka and only slightly above the \$85,619 price affordable to low-income households in Eureka. The median rental price was \$340 in 1992, which is below the \$370 price affordable to the very low-income household in Eureka.
- The Humboldt County Association of Governments (HCAOG) issued fair share housing allocation numbers in October 1992. HCAOG's adjusted housing allocation for Eureka indicates a need for development of 762 housing units between 1991 and 1997. By income category, Eureka would need to add 209 units of very low-income housing (affordable to households with incomes up to 50 percent of area median income), 128 units of low-income housing (affordable to households with incomes up to 80 percent of area median income), 51 units of moderate-income housing (affordable to households with incomes up to 120 percent of area median income), and 374 units of above moderate-income housing (affordable to households with incomes above 120 percent of area median income).
- Eureka had a higher percentage of elderly persons than either Humboldt County or California as a whole in 1990. Approximately 15 percent of Eureka's population was over age 65 in 1990. Twelve percent of all elderly households in Eureka were living in poverty.
- Eureka had a higher percentage of single-women households with children than either Humboldt County or California as a whole in 1990. Approximately 29 percent of Eureka's households were headed by a single mother in 1990. Forty-two percent of all single-women households with children in Eureka were living in poverty in 1990.
- According to the *Humboldt County Homeless Task Force Report to the Humboldt County Board of Supervisors*, published in March 1991, there were more than 1,200 homeless persons in Humboldt County in 1990. Of these, 20 were youth away from home, 700 were in families, and 500 were individuals who were substance abusers, mentally ill, or generally indigent. Although the report does not generally specify where homeless persons are located in the county, it does report that of the estimated 500 individuals, approximately 200 were living in the Eureka. The 1990 Census reported 173 persons in homeless shelters and 27 homeless persons visible in street locations in Eureka in 1990.
- The City of Eureka has adequate sites to accommodate the housing needs of all income groups in Eureka.

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LIST OF PERSONS CONSULTED

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- Brown, Susan, Humboldt County Association for Retarded Citizens, Inc.
- Canzoneri, Joel, Senior Planner, City of Eureka
- Denny, Barbara, Humboldt County Senior Resource Center
- Mari Glynn, Humboldt Access Project
- Hamblin, Kevin, Community Development Director, City of Eureka
- Howatt, Nancy, Assistant Finance Director, City of Eureka
- Israel, Debbie, Senior Planner, City of Eureka

Loring, Ted, Historical Society

McGinty, David, Utilities Director, City of Eureka

Morelli, Robert, Eureka Housing Authority

Walser, Barbara, Silvercrest Residence

APPENDIX 2-A

SPECIAL HOUSING REQUIREMENTS

In addition to requiring each city and county adopt a housing element, the California Legislature has enacted some very specific requirements to ensure that local regulatory procedures do not constrain housing development. This chapter summarizes these special housing mandates.

DISAPPROVAL OF LOW- AND MODERATE-INCOME HOUSING PROJECTS

A local agency shall not disapprove a housing development project affordable to low- or moderate-income households or condition approval in such a manner which renders the project infeasible unless it finds one of the following:

- The jurisdiction has an adopted housing element and the project is not needed to meet its share of the regional housing need for low-income housing;
- The project would have a specific, adverse impact upon the public health or safety which could not be mitigated without rendering the project unaffordable to low- and moderate-income households;
- The denial is required in order to comply with specific state or federal law
- The approval would increase the concentration of lower-income households in a neighborhood that already has a disproportionately high number of lower income households and there is no alternative site on which the project could be developed without rendering the project unaffordable to low- and moderate-income households;
- The project is proposed on land zoned for agriculture or resource preservation which is surrounded on at least two sides by land being used for agriculture or resource preservation;
- The development is inconsistent with the jurisdiction's general plan land use designation, and the jurisdiction has an adopted housing element.

FINDINGS ON HOUSING LIMITS

Any city or county adopting or amending its general plan in a manner that limits the number of units that may be constructed on an annual basis must make specified findings concerning the efforts it has made to implement its housing element and the public health, safety, and welfare considerations that justify reducing the housing opportunities of the region (*Government Code § 65302.8 and § 65863.6*).

HOUSING DISAPPROVALS AND REDUCTIONS

When a proposed housing development complies with applicable local policies and regulations in effect at the time the application is determined to be complete, the local agency may not disapprove the project or reduce its density unless it makes specified findings (*Government Code § 65589.5*).

CONVERSION OR DEMOLITION OF LOW-INCOME HOUSING IN THE COASTAL ZONE

The conversion or demolition of existing residential dwelling units occupied by persons and families of low or moderate income shall not be authorized unless provision has been made for the replacement of those units (*Government Code § 65590*).

CONVERSION OR DEMOLITION OF RESIDENTIAL USES IN THE COASTAL ZONE

The conversion or demolition of any residential structure for purposes of a nonresidential use which is not coastal dependent shall not be authorized unless the City determined that the residential use is no longer feasible. If the City makes this finding and allows conversion or demolition any residential structure, it shall require replacement of any dwelling units occupied by persons and families of low or moderate income (*Government Code § 65590*).

NEW HOUSING DEVELOPMENT IN THE COASTAL ZONE

New housing developments constructed in the coastal zone shall, where feasible, provide housing for persons and families of low or moderate income (*Government Code § 65590*).

SOLAR ENERGY SYSTEMS

Cities and counties may not enact zoning provisions that effectively prohibit or unnecessarily restrict the use of solar energy systems, except for the protection of public health or safety. Allowable "reasonable restrictions" include those that do not significantly increase the cost of the solar system or significantly decrease its efficiency and those that allow for an alternative system of comparable cost and efficiency (*Government Code § 65850.5*).

SECONDARY RESIDENTIAL UNITS

To encourage establishment of secondary units on existing developed lots, cities and counties are required to either (1) adopt an ordinance based on standards set out in the law authorizing creation of second units in residentially zoned areas; or (2) where no ordinance has been adopted, allow second units by use permit if they meet standards set out in the law. Local governments are precluded from totally prohibiting second units in residentially zoned areas unless they make specific findings (*Government Code § 65852.2*).

MOBILEHOMES IN SINGLE-FAMILY ZONES

Cities and counties shall allow the installation of mobilehomes on permanent foundations on lots zoned for conventional single-family dwellings. Cities and counties shall only subject mobilehomes to the same development standards that apply to single-family dwellings. Any architectural requirements, however, shall be limited to roof overhang, roofing material, and siding material and shall not exceed those which would be required of a single-family dwelling constructed on the same lot. Any area considered to be of special historical interest may be exempted from this provision (*Government Code § 65852.3*).

MOBILEHOME PARKS

Health and Safety Code § 18300 preempts local authority to regulate mobilehome parks except in regards to a very limited set of powers, and vests the responsibility with the California Department of Housing and Community Development. Local authorities can assume responsibility for enforcement of regulations from the department upon 30 days written notice to the department. Whether or not the local authority assumes enforcement powers from the state, it retains the power to:

- establish certain zones for mobilehome parks and to prohibit mobilehome parks from non-residential zones;
- establish types of mobilehome uses including family mobilehome parks, adult mobilehome parks, mobilehome condominiums, mobilehome subdivisions, or mobilehome planned unit developments;

- adopt rules and regulations prescribing park perimeter walls or enclosures on public street frontage, signs, access, and vehicle parking;
- prohibit certain uses for mobilehome parks;
- regulate the construction and use of equipment and facilities located outside of a mobilehome unit;
- regulate the density of a mobilehome park provided the density is not less than that allowed for other residential uses within that zone;
- require recreational facilities, recreational areas, etc., to the extent that such facilities or improvements are required for other types of residential developments containing a like number of residential dwelling units.

A mobilehome park is deemed by state law to be a permitted use on all land general planned and zoned for residential use (*Government Code § 65852.7*).

MOBILEHOME PARK CONVERSIONS

Any subdivider filing a tentative or parcel map to be created from the conversion of a mobilehome park to another use must prepare and file a report on the impact of the conversion on the displaced mobilehome park residents. The subdivider shall make a copy of the report available to each resident of the mobilehome park at least 15 days prior to the public hearing. The city or county with jurisdiction must consider the impact report at a public hearing and may require as a condition of approval of the conversion that the project sponsor mitigate the impacts of displacement. These provisions also apply when closure of a mobilehome park is the result of a decision by a local government entity or planning agency (*Government Code § 65863.7 and § 66427.4*).

NOTIFICATION ON MOBILEHOME PARK CONVERSIONS

A city or county that has received an application for a mobilehome park conversion must notify the applicant at least 30 days prior to any hearing or action of state and local requirements for applicant notification or mobilehome owners and park residents concerning the proposed change. No action may be taken on the application until the applicant has satisfactorily verified that mobilehome owners and park residents have been properly notified (*Government Code § 65863.8*).

LIMITATIONS ON DEVELOPMENT PERMIT FEES

Fees charged by local public agencies for zoning changes, variances, use permits, building inspections, building permits subdivision map processing, or other planning services may not exceed the estimated reasonable cost of providing the service for which the fee is charged. Fees may exceed this limit only with a two-thirds vote of the electorate (*Government Code § 54990 and § 65909.5*).

RESIDENTIAL ZONING

Cities and counties must zone a sufficient amount of vacant land for residential use to maintain a balance with land zoned for non-residential use (e.g., commercial and industrial) and to meet the community's projected housing needs as identified in the housing element of the general plan (*Government Code § 65913.1*).

RESIDENTIAL SUBDIVISION STANDARDS

Cities and counties may not impose standards for design and improvement for the purpose of making the development of housing for any and all economic segments of the community infeasible. Furthermore, it shall consider the effect of ordinances adopted and actions taken with respect to the housing needs of the region in which the local jurisdiction is situated (*Government Code § 65913.2*).

COORDINATED PERMIT PROCESSING

Each city and county must designate a single administrative entity to coordinate the review and decision-making and provision of information regarding the status of all applications and permits for residential, commercial, and industrial developments (*Government Code § 65913.3*).

DENSITY BONUSES

When a developer agrees to construct at least 20 percent of the total units in a housing development for lower income households, 10 percent of the total units for very low income households, or 50 percent of the total dwelling units for qualifying senior citizens, the city or county must either grant a density bonus and at least one other concession or incentive, or provide other incentives of equivalent financial value. The developer must agree to ensure continued affordability for all lower income units for 30 years (10 years under particular circumstances). The density bonus must increase by at least 25 percent the other maximum allowable density specified by the zoning ordinance and the land use element of the general plan. Each city or county must set up procedures for carrying out these provisions (*Government Code § 65913.4 and § 65915*).

DENSITY BONUSES FOR CONDOMINIUM CONVERSIONS

When a developer proposing to convert apartments to condominiums agrees to provide at least 33 percent of the total units in the proposed condominium project for low or moderate income households, at least 15 percent of the total units for lower income households, the city or county must either grant a density bonus or provide other incentives of equivalent financial value. The density bonus must increase by at least 25 percent over the number of apartments to be provided within the existing structure proposed for conversion (*Government Code § 65915.5*).

CEQA AND DENSITY REDUCTIONS

Cities and counties may deny or reduce the density set forth by the general plan for a housing project only as a mitigation measure for a specific adverse impact upon public health or safety pursuant to the California Environmental Quality Act and only when there is no other feasible mitigation that would achieve comparable density results (*Public Resources Code § 21085*).

RESIDENTIAL ENERGY CONSERVATION

Cities and counties are required to adopt energy conservation standards for new residential dwellings (excluding apartment houses with four or more stories and hotels); (*Public Resources Code § 25402.1*).

REDEVELOPMENT REPLACEMENT HOUSING

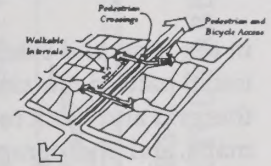
Every redevelopment plan must contain provisions that provide replacement housing on a "one-for-one" basis for low and moderate income persons displaced by redevelopment activity. (*Health and Safety Code § 33334.5*).

TAX INCREMENT FUNDS FOR HOUSING

Redevelopment agencies must use at least 20 percent of tax increment revenues generated by a redevelopment project to increase and improve the community's supply of housing for persons of low and moderate income. Certain findings may be made by the agency to set aside less than 20 percent if no need exists for such housing, if less than 20 percent is required to meet the need, or if a substantial effort to meet the needs is being made (*Health and Safety Code § 33334.2*).

CHAPTER 3

URBAN FORM AND DESIGN



INTRODUCTION

This chapter describes the overall physical structure of Eureka and the quality of its built environment. The discussion includes an analysis of the primary determinants and composition of Eureka's urban pattern, major architectural elements, the quality and vitality of public spaces, and the physical interrelationships between primary transportation facilities and the urban fabric. The primary focus of this chapter is on the central city area and the U.S. 101 corridor. Figure 3-1 shows the central city study area.

This chapter is divided into seven sections. The first section describes Eureka's urban setting in terms of both natural and built elements. The second section describes the historic development pattern. The third section summarizes previous urban design plans and policies. The fourth section is an analysis of the physical form, structure, and appearance of Eureka, including detailed discussions of major physical barriers and edges, primary circulation routes, principal spatial patterns, landmarks, historic buildings, scenic highways, and city entries. The fifth section is a set of findings related to urban design. The sixth and seventh sections list bibliographic references and persons consulted in the course of preparing this chapter.

URBAN SETTING

Eureka, located on the inner shoreline of Humboldt Bay, commands a dramatic view of Humboldt Bay and the surrounding wooded hills and agricultural lands. The strong influence of both the forest and the sea--the city's historic natural resource base--is present in both the physical and visual setting. The Samoa Peninsula and several islands visually differentiate Eureka and Humboldt Bay from the open ocean and also serve to make Eureka's urban area more contained and intimate than most California coastal cities.

The older historic section of Eureka is organized by a regular grid street pattern situated on a coastal plain along the Bay shoreline. A gradual increase in elevation affords views of the Bay from inland sites, although the slope gradient is so gradual that the principal views are along street corridors or from unobstructed upper story windows. This historic section reaches the Coast Range foothills approximately two and one-half miles inland, where more recent development patterns are dictated by topography and tend to follow canyons and ridgetops.

An impressive stock of historic buildings, the tallest of which are four to six stories in height, dominates the downtown skyline. Although the gentle topography and buildings tend to obscure views of the downtown from within most of the older section of the city, the skyline is pronounced when viewed from the Bay or from Woodley Island. Although Eureka was originally settled because of its waterfront location, U.S. 101, the major highway serving the California North Coast, and its predecessor roads, gradually replaced the Bay as the primary access to the city. U.S. 101 also has served to bisect the highly regular historic grid street and urban development pattern and to extend and concentrate much of the recent commercial development along a seven-mile-long highway corridor in urbanized Eureka.

HISTORIC DEVELOPMENT PATTERN

Eureka was founded in 1850 as a supply post for the mining industry in the Trinity Mountains to the east. Maps and drawings from the 1860s suggest an early vision of Eureka as a major city. Maps from the late 1800s and the early 1900s show the strong grid street pattern stretching from A Street in the west to Z Street

in the east, and extending south from 1st Street along the waterfront to the vicinity of Harris Street. This initial pattern remained intact for over half a century until the various annexations in the 1950s. Although this grid and block residential pattern was originally imposed on a forested area as shown in early drawings, maps, and photographs, there is no strong presence of native vegetation in the area today, with the exception of three stream corridors that meander through the northeastern part of the city.

This large area of platted land did not fill out until the past several decades. According to the City's 1965 General Plan, a California guidebook published in the late 1930s described Eureka as spread "in checkerboard fashion over an area large enough to accommodate a population several times its present size." This relatively low development density has persisted within the urban core into the 1990s. Even today, this pre-1900 street pattern constitutes nearly two-thirds of the land area of the city.

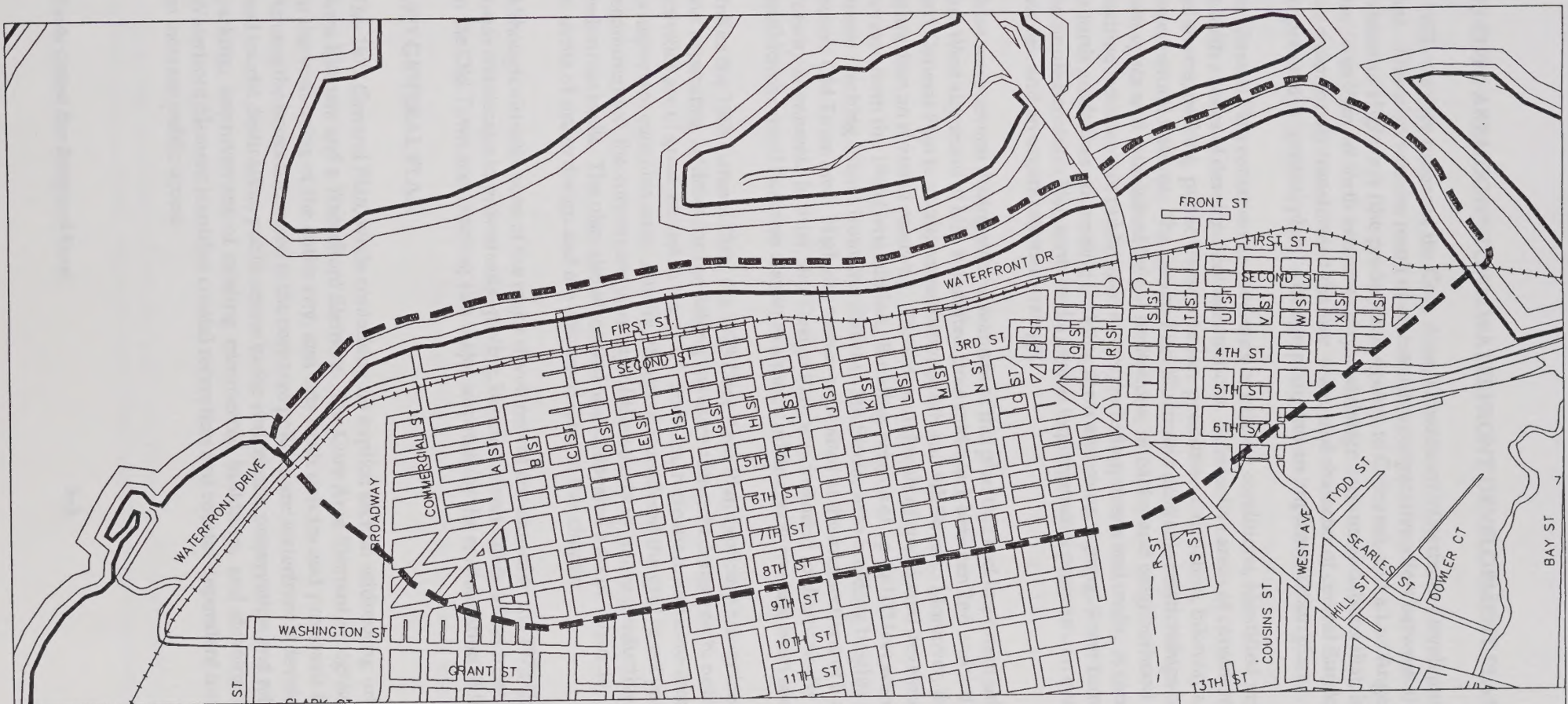
The development that occurred within this initial grid pattern quickly established 1st Street as the primary industrial street (later also occupied by a railroad right-of-way) and 2nd Street as a commercial/retail street. These two streets formed the core of a lively waterfront area that featured a "Barbary Coast" that flourished for decades. Evidence from an 1886 map indicates that F Street was the primary North-South street. Thus, the city grew along two primary axes—an industrial, commercial axis along a one-mile waterfront and a residential axis along F Street. A third development axis was created with the initial construction of a coastal road and its eventual upgrading to highway status. The highway has increasingly served as a development corridor that now occupies virtually the entire Route 101 alignment within the city limits. The final dimension of the historic development pattern is expressed in the form of more recent outlying suburban development, primarily in the unincorporated area south of Harris Street. Communities that occupy this area include Cutten, Pine Hill, Ridgewood Heights, Elk River, and Bayview. Redwood Acres and Myrtle Towne, also unincorporated communities, border the slough complex in the northeastern part of the urban area.

Much of the recent development has occurred on sloping terrain, and unlike in the historic block pattern, the cover of mature trees both within and bordering the development pattern has been retained. This pattern also differs significantly from the block street pattern of the historic city, increasingly reflecting the curvilinear street patterns typical of post-World War II suburban residential developments. The street system in this part of Eureka is largely determined by topography and is characterized by fingers of development contiguous to the road system that serves a differentiated system of foothill canyons and ridgetops.

PREVIOUS URBAN DESIGN PLANS

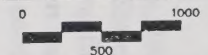
1965 GENERAL PLAN

The 1965 General Plan, while containing no formal section devoted to urban design, contained proposals with important urban design implications and consequences. The most important of these, with regards to urban design in Eureka's core area, was a proposal to replace vacant waterfront warehouses with a waterfront complex of motels, restaurants, and convention center modeled after Jack London Square in Oakland or Fisherman's Wharf in San Francisco. The envisioned rejuvenation included a public plaza on Humboldt Bay which would make the waterfront accessible to the public. A lumber schooner was to be tied up at the quay as a tourist attraction, and a waterfront pedestrian promenade was planned between C and I Streets. Motels, restaurants, and a convention center were central features of the plan and were projected to occupy most of the waterfront area. The 1965 General Plan also proposed to convert U.S. 101 into a cross-town elevated freeway aligned between Old Town and Downtown.



— — Limits of Central City Urban
Design Analysis

CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Mintier & Associates, June 1993

**FIGURE 3-1
CENTRAL CITY STUDY AREA**

Source: Mintier & Associates, 1993

1973 CORE AREA/DOWNTOWN WATERFRONT DEVELOPMENT PLAN

In 1973, the City prepared the Core Area/Downtown Waterfront Development Plan (i.e., 1973 Core Area Plan). This plan was the result of an intensive cooperative effort between the City, the State of California Division of Highways (the predecessor agency to Caltrans), and a Los Angeles consulting firm. The 1973 Core Area Plan set forth extensive physical design recommendations that, had they been realized, would have dramatically transformed the size, scale, and character of central Eureka. The plan consisted of three components: a "general plan," a design plan, and an implementation plan.

The General Plan contained an inventory of existing conditions, identified primary issues and policies, and set forth a series of development assumptions. Substantive areas of consideration included land use, traffic and streets, parking, public transportation, pedestrian circulation, bikeways, housing, and parks and open space/natural features. The Design Plan illustrated desirable relationships between building volumes and open space and established height limitations, setbacks, and neighborhood preservation concepts. It also specified treatments of public open spaces, including streets and malls. A companion Urban Design Manual set forth guidelines addressing building form and color, signing, street furniture, and public landscaping. The Implementation Plan contained a capital improvements program, an evaluation of alternative funding sources, and an organizational strategy.

There were several distinguishing features of this plan that had important urban design consequences. The East-West alignment of U.S. 101 shifted from mid-block between 2nd and 3rd Streets as recommended in the 1965 General Plan to an alignment between 6th and 9th Streets. Moreover, this plan envisioned a depressed rather than an elevated roadway. The scope and scale of envisioned development represented a substantial increase from the 1965 General Plan. Building heights of up to 100 feet were envisioned between D and H Streets reaching inland from 2nd Street to 9th Street, with building heights of 60 feet for the balance of the present Old Town area. High rise towers were sited at the intersections of F and G Streets and the proposed freeway alignment. In brief, this Design Plan was intended to dramatically transform the core area from a small-town central business district to a major urban center rivaling cities such as Sacramento and Stockton.

Unlike the 1965 General Plan, the 1973 Core Area Plan explicitly recognized the importance of upgrading and expanding facilities for the fishing industry along the inner reach, noting that "fishing and waterfront activities are of great interest to tourists." Tourism, recreation, and core-area housing were also recognized as important core area uses. Finally, this plan considered the grid street pattern to be "underutilized," and recommended the conversion of many of the streets to "more productive uses" such as open space and pedestrian malls. The plan also identified and delineated a set of "districts," several of which remain useful in terms of urban design and are discussed later in this chapter.

Although virtually none of the major development envisioned in the 1973 Core Area Plan was ever realized, major streetscape improvements--paving, benches, street lights, street trees, and the plazas--were provided in the Old Town area, serving as a major impetus for the revitalization of the Old Town area.

1977 GENERAL PLAN

The 1977 General Plan, while containing no explicit section addressing urban design, does contain a Core Area Element and a Waterfront Element. The Core Area Element recognizes the centrality of the core area to the well-being of the entire city, and sets forth policies and proposals for the revitalization of the area. Among the issues addressed in the core area policies are: waterfront redevelopment as an employment center and tourist destination, public access to the waterfront, preservation and rehabilitation of historic buildings, parking, improvement of existing commercial buildings, and development of an F Street Mall. The Waterfront Element identifies coastal recreation and coastal-dependent industry as priority uses and seeks to increase public access.

1984 LOCAL COASTAL PROGRAM

The 1984 Local Coastal Program (LCP) contained seven chapters, each of which included a number of policies with urban design implications. These were as follows:

Public Access

Policies within the public access chapter called for the protection and enhancement of public access to the shoreline, including the provision of a continuous public access system.

Recreation and Visitor-Serving Facilities

Policies enumerated in this chapter addressed the preservation and enhancement of the Northern waterfront through its redevelopment as a recreational and visitor serving coastal resource in order to maximize its scenic and historic values, including the development of a Logging and Fishing Museum. The variety of older waterfront buildings was to be preserved and the structures rehabilitated. The overriding policy, however, stated that coastal-dependent uses shall have priority, but were required to harmonize with surrounding areas to the maximum extent possible.

Commercial Fishing and Recreational Boating

The protection and upgrading of commercial fishing, and ensuring that recreational boating does not interfere with commercial fishing, were key policies in this chapter. Coastal-dependent uses were cited as having priority, and non-coastal-dependent uses were to be relocated to inland sites.

Agriculture

Agricultural lands within the City limits were to be maintained to the maximum extent feasible (thus serving as a determinant of urban form).

Visual Resources

Policies in this chapter called for the protection of scenic views; restoration and enhancement of visual quality in degraded areas; making Scenic Route rights-of-way more visually attractive; requiring new development to be compatible with the character of surrounding areas; and protecting and enhancing views from scenic vista points.

Public Works and Public Facilities

The development of Waterfront Drive and the improvement of existing transportation rights-of-way, including pedestrian bridges over the railroad were key policies in this chapter.

New Development

Principal policies set forth in this chapter called for the concentration of development within the urban limit line and the infill of vacant land.

MISCELLANEOUS GUIDELINES AND REGULATIONS

Main Street Program

In 1992, Eureka became a California Main Street Program City, and thus qualified for technical and program assistance from the State. The general objective of the Main Street Program is to reverse business decline in

downtown areas, to undertake visual and physical upgrading of structures, and to create a more attractive atmosphere for pedestrians. In the specific case of Eureka, there are several additional goals with urban design implications, including the unification of Old Town and Downtown into a single coherent core area, the provision of live-work space for artists, and a greater presence of arts and cultural facilities. Long-term objectives also include the development of a conference center and a Downtown theater, development of underutilized waterfront buildings, and restoration of historic buildings. Although still in its early stages, the program has garnered considerable support from central city businesses and the broader arts and culture community, and appears destined to play an important role in both revitalization and urban design in the central city.

Waterfront Revitalization Program

In September 1993, the City of Eureka Harbor Commission submitted a final report on the Waterfront Revitalization Program to the Eureka City Council. That report set forth priorities for 32 specific waterfront projects, each of which had first met three eligibility criteria: they were part of an ongoing program or an idea under consideration prior to January 1993; they were sited on public property (or involved major public investment); and they were subject to the powers and duties of the Eureka Harbor Commission. In June 1994, the City Council identified 11 high-priority projects to serve as catalysts for revitalization of the waterfront. Table 3-1 shows these projects.

TABLE 3-1	
WATERFRONT REVITALIZATION PROGRAM HIGH-PRIORITY PROJECTS	
1.	Establishment of a comprehensive wetland management program that includes all of Eureka's restored and natural wetland areas.
2.	Implementation of the PALCO Marsh Enhancement Plan.
3.	Construction of a public access vista point at the foot of Truesdale Street.
4.	Reconstruction of the Landing dock near the foot of C Street.
5.	Design and construction of a public berthing facility in Inner Reach near the Adorni Center.
6.	Development of a multi-use building between C and F Streets to house a Fisherman's-Farmer's Market and retail stores.
7.	Development of Fisherman's Parcel for fishing fleet activities.
8.	Rehabilitation of the existing small boat basin, dredging and expansion of the Humboldt Yacht Club, and development of a fishing industry support facility.
9.	Completion of a waterfront bicycle/pedestrian trail from K Street to Del Norte Street.
10.	Development of a Wetland Mitigation Bank as a comprehensive tool for mitigating the loss of wetlands to development.
11.	Development of a facility for the Humboldt Bay Rowers Association near the Adorni Center.

In March 1994, the City Council allocated \$5.7 million to initiate work on the projects show in Table 3-1, and in December 1995, the City broke ground on the first project (#5, a new dock near the Adorni Center).

Strategic Plan/Syzygy

In 1992, the City Council adopted a resolution setting forth a Strategic Plan for the City of Eureka. This document and its successor document (Syzygy: Opportunity on Humboldt Bay: A Vision of Eureka's Future), are directed at a series of development areas and/or projects. Individually and in the aggregate, these potential projects would be major physical elements within the city's urban fabric and thus require careful and considered urban design attention during the formulation of the General Plan.

Included in the list of planned projects are a Multi-Use Dock (Dock B), a coastal economic development center, a fisherman's building, a recreational marina, a new civic center, and a restaurant on Woodley Island.

The plan also contains proposals for a senior housing project, a seaside village, a parking structure, and additional commercial fishermen's facilities. Sites available for development include the Halvorson site, the Wright-Schuchart Industrial Site contiguous to the Small Boat Basin, a 14-acre coastal industrial site adjacent to the Bayshore Mall, and a 250-acre Industrial Site on the Samoa Peninsula.

Eureka Waterfront Facilities Plan

In 1990, the California Coastal Conservancy funded a study to formulate a recreation trail and facilities plan that would strengthen the relationship between the downtown and the waterfront. The schematic plan established alternative trail alignments, identified street improvements and linkages, proposed gateway treatments, and provided a schematic site plan for commercial fishing support facilities.

URBAN FORM AND STRUCTURE

This section describes and analyzes the major physical features, both built and natural, that organize Eureka's development pattern. Of primary interest are those elements and features that are particular to the city and that contribute significantly to the appearance and character of the built environment. These considerations--elements, patterns, and relationships--are central to the existing Downtown structure which is intimately scaled, architecturally distinct, and closely linked to surrounding residential areas.

PHYSICAL BARRIERS AND EDGES

Eureka is defined by four major natural features that define its urban form and structure: (1) the configuration of the Bay shoreline; (2) the topography, stream channels, and tree-cover of the foothills in the southern area of the city; (3) the sloughs that penetrate the northeastern shoreline; and (4) the gulches that transect the older urban area in several locations. These features constitute important edges and barriers to development, thereby defining and constraining development patterns and influencing the location of the circulation system. These edges also delineate major contrasts in the visual character of the landscape, thereby contributing to the significant scenic qualities of the area.

There are two primary human-imposed physical barriers in the General Plan Planning Area--U.S. 101 (with an alignment that parallels the shoreline approximately one-quarter to one-half mile inland) and the railroad right-of-way (similarly parallel to the shoreline but closer to the water's edge). Minor barriers exist in the form of roads, parks, the golf course, and cemeteries, but in most cases are not primary determinants of urban form or structure.

PRIMARY CIRCULATION ROUTES

Urban form and structure is greatly influenced by circulation patterns and traffic. U.S. 101 has the greatest influence on the organization of circulation and the pattern of development within Eureka. As the primary path in the city, U.S. 101 not only dominates through traffic, it also serves to organize the circulation to and through the central core. The noise and heavy traffic associated with large trucks on U.S. 101 also have a negative effect on the central city, but this alignment is essential to bringing customers into the commercial central city. Another problem with the current design of U.S. 101 is that visitors traveling through the central city are not sufficiently notified of the location and existence of the Old Town area. The overall visual appearance of the U.S. 101 corridor is also a problem. A 1990 economic development study noted that Eureka had a poor image when viewed from its major commercial arterials both within the core and in outlying areas.

Another component of the circulation system relevant to urban design is Humboldt Bay. Humboldt Bay is a strategic point of access, albeit a less apparent one than U.S. 101, serving such maritime activities as the deepwater port in the outer channel and the two small craft harbors (with both fishing and recreational

boats) and the Madaket tours in the inner channel. Plans for cruise ship visits, Navy ship visits, an expanded deepwater port, and the provision of more small craft dock facilities along the inner reach underscore the increasing importance of Humboldt Bay as a point of access to the city.

Railroads are also an important component of Eureka's urban design. Railroads once provided connections between mills and the outlying forests and formed a lattice throughout the county and the city. Humboldt County is reputed to have once had the largest mileage of rail lines of any county in the United States. Times have changed, and only a modest rail service remains. The alignment of the remaining rail line extends along the entire city shoreline serving the major industrial and shipping areas of the city and should continue to be treated as a major path within the city.

DISTRICTS

Within the context of urban design, a district is a geographic area with internal physical coherence in terms of characteristics such as building scale and massing, architectural form, landscape quality, and pedestrian activity. This descriptive use of the term "district" should not be confused with its regulatory use (i.e., as in land use or zoning districts). The districts delineated and analyzed in the discussion below focus on the essential and distinguishing characteristics of the various parts of the city. They serve as the basis for identifying issues related to strengthening their visual qualities, enhancing their physical interrelationships, increasing their appeal to pedestrians, and making them more attractive to investors. Delineating precise boundaries of urban design districts is difficult since the urban fabric of the central city is rich and complex and does not lend itself to easy classification. Moreover, precise boundaries are less important than recognizing the general distinctions in the built environment that have led to the widespread use of the terms "Waterfront," "Old Town," and "Downtown." The boundaries of these districts obviously overlap and intertwine, and should be treated as soft and irregular. Figure 3-2 shows urban design districts for the central city.

Core Area (Areas A, B, and C)

The Core Area constitutes the most intensely urban part of the city. Distinguished by the height, massing, and the historic commercial character of its architecture, this district is the dominant built area within Eureka and is also the primary urban center of the California North Coast region. This area is important to the city in terms of its urban design function but currently has significant problems, including an excess of vacant upper-story space, numerous derelict buildings, and numerous unreinforced masonry buildings (URMs).

A survey of selected cities with populations similar to Eureka indicates that the Eureka core area is considerably larger than the other cities in the sample, and in most cases, double the size of the core areas of the comparable cities. Except for some obvious pockets of concentrated uses, the Eureka core area lacks the intensity of development and the resultant pedestrian vitality that would occur if it were more compact and intensively developed. As such, the core area can be characterized as too extensive to support the development intensity necessary to give greater life to the area. The Core Area is divided into Three districts: 1) the Central Waterfront, 2) Old Town Mercantile, and 3) Downtown.

Central Waterfront (Area A)

The Central Waterfront district is a narrow area extending along 1st Street from C Street to I Street. This district is characterized by its historic role in the city, its current condition (abandoned warehouses with a scattering of older commercial buildings), and its proximity to the commercial center of the city. The scale and architectural character is maritime industrial and commercial. Inasmuch as no modern structures interrupt the fabric of the Central Waterfront, it constitutes a resource of great potential in terms of retaining the historic character of a working waterfront. Restoration and revitalization of the Central Waterfront would strengthen Eureka's economy and increase the attractiveness of Eureka as a tourist destination (See Chapter 5 for further discussion of this topic).

Important issues in the revitalization of Central Waterfront district include minimizing adverse impacts on the fisheries operations located to both the east and west of the district; maintaining the historic character of the area while rehabilitating existing structures and constructing new ones; increasing public access to and along the shoreline, including the expansion of public docks at the foot of F Street and C Street; achieving expeditious resolution to the cleanup of toxic sites and any required wetland mitigation; expanding maritime activities that also serve as tourist attractions; and increasing waterfront recreation. An important initial step toward revitalization is a cleanup of derelict properties and structures, particularly those in public ownership.

Old Town Mercantile (Area B)

Contiguous with the landward edge of the Central Waterfront is the Old Town Mercantile district. 2nd Street is the principal street axis defining the Old Town Mercantile district, with 1st and 3rd Streets in subordinate roles; C Street and I Street serve to define the eastern and western boundaries. This district is characterized by a large and exceptional stock of historic buildings; a concentration of retail uses; a visible presence of arts and culture; important public spaces; and a considerable amount of vacant or underutilized upper-story (primarily second-story) space. Proximity to both the Waterfront and U.S. 101 provide this district with important and continuous points of access to major circulation elements. Moreover, this district contains many places valued by local residents as discussed below. The presence of these destination places within the Old Town Mercantile district has a major influence on the appeal of the entire core area.

In spite of its proximity to U.S. 101, access to the Old Town Mercantile district is confusing and difficult to negotiate for non-residents. Moreover, the relatively low visual quality of the U.S. 101 corridor through the central-city creates a barrier between the highway and the considerably higher quality of the Old Town built environment. Other issues of concern for this district include: seismic retrofitting of unreinforced masonry buildings that constitute a threat to the long-term viability of the entire urban core should they be destroyed in an earthquake; maintaining the historic scale and character while rehabilitating existing structures and building new ones; improving the condition and quality of public space; increasing the presence of arts and culture; parking (both public and private); and increasing the visual quality of access from U.S. 101.

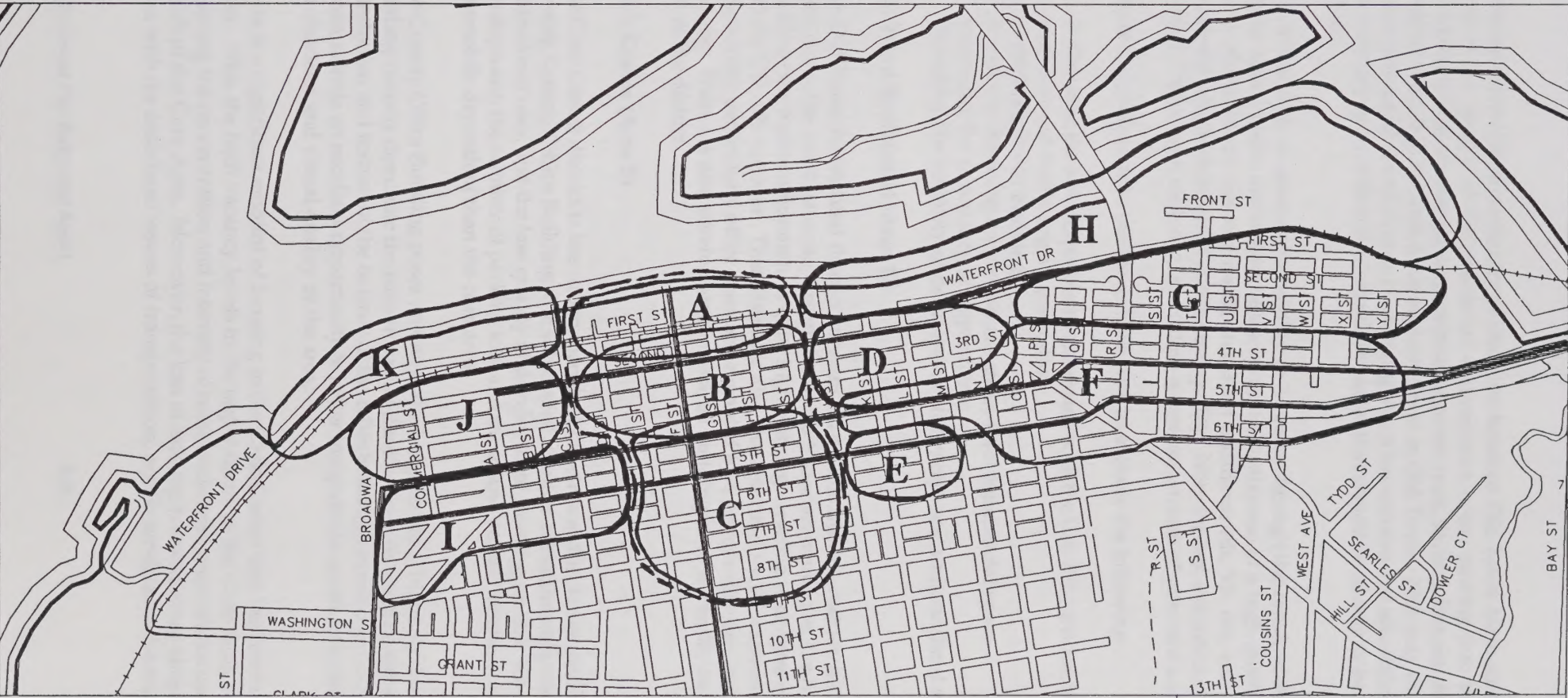
Downtown (C)

The Downtown district, defined by 3rd and 8th Streets and D and I Streets, houses the majority of Eureka's taller buildings. The scale and building massing serve to identify this area as the center of commerce for the city. This area is far less active and vital than the scale and massing suggest due to a number of factors, including the following:

- General economic conditions
- Competition from outlying commercial areas
- The risk posed by a significant number of unreinforced masonry buildings
- Undistinguished urban landscape and streetscape character
- Wide variation in levels of use intensity (as discussed later in this chapter)
- The adverse impacts of U.S. 101

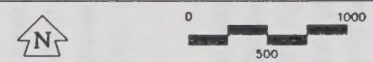
In combination, these factors serve to diminish the attractiveness and level of activity normally associated with a strong central commercial downtown. These problems notwithstanding, the district presents many opportunities, including the following:

- It is close to the planned Civic Center Complex
- It is contiguous to the Old Town Mercantile area, with its considerable amenities
- It is relatively close to the Waterfront
- It is well-defined and architecturally intact in terms of providing a strong central element within the fabric of the city



- | | |
|-------------------------------|-------------------------------|
| A Central Waterfront | --- Core Area |
| B Oldtown Merchantile | G Bridge Residential |
| C Downtown | H East Waterfront |
| D Oldtown Residential | I Westend 101 Corridor |
| E Civic Center | J Westend Commercial |
| F Eastend 101 Corridor | K Working Waterfront |

CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Mintier & Associates, June 1993

**FIGURE 3-2
APPROXIMATE BOUNDARIES
OF CENTRAL CITY DISTRICTS**

Source: Mintier & Associates, 1993

Because there is little continuity of character between Old Town Mercantile and the Downtown, there is a drop in the quality of the pedestrian environment when moving into the Downtown from Old Town. Downtown lacks streetscape improvements--street trees, seating, flowers, street lights, and trash receptacles, such as those that increased the amenity level in Old Town. Not only does this relegate Downtown to a lower status and reveal a sense of civic neglect, it has constructed an artificial and divisive schism between two primary areas within the central city; areas that should be closely linked and integrated into a coherent whole.

U.S. 101 is both an asset and a liability as it passes through the center of the Downtown. Noise, dust, and higher speed traffic are serious obstacles to the realization of a high quality pedestrian environment, as is the combination of one-way traffic and street widths on 4th, 5th, 6th, and 7th Streets that serve to create a decidedly vehicle-dominated streetscape quality. Nonetheless, a significant number of motor vehicles pass through Downtown each day, providing a constant stream of potential customers for local businesses.

Issues of significance to the Downtown district include the following:

- Addressing the serious problems associated with the U.S. 101 corridor, including both streetscape design attention and traffic impact mitigation
- Retrofitting URM buildings
- Increasing the occupancy of vacant street-level commercial space
- Increasing the occupancy of upper floors
- Increasing the intensity of development for vacant and underutilized sites

Old Town Residential (Area D)

The Old Town Residential district contains many fine historic residential buildings, of which the Carson Mansion is the most famous. Except for some Victorian mansions, the building scale is modest and the quality of the built environment is quite high, although tending to decline adjacent to Old Town Mercantile and the U.S. 101 corridor. This district is also characterized by the conversion of residential buildings into commercial, particularly office uses, accompanied by the inevitable demand for and provision of additional parking. There are also several large industrial buildings that are badly out of scale and character with the rest of the district.

Civic Center (Area E)

The Civic Center district is less urban than the Core Area and is dominated by the imposing presence of the existing County Office Building, the substantial number of residential structures converted into office and professional uses, and the low quality of development fronting on U.S. 101. The relatively low intensity of development, the number of parking lots, and the extensive land coverage suggests that this district is more automobile dependent than the core area.

The County Office Building poses an unusual set of problems. Not only does the height and massing of the building visually dominate the eastern part of the core area, its stark facade markedly contrasts with the rich fenestration and texture of the balance of the taller buildings in the city. The planned expansion of the Civic Center affords an excellent opportunity to better integrate the entire complex into its context and to enhance the character and visual quality of the area.

There is a significant amount of housing in the Civic Center that has been converted to office use in recent years. With the high vacancy levels in the upper floors in the Core Area, this conversion is antithetical to achieving the concentration and intensity of commercial and professional uses needed to sustain the overall health of the Core Area. Moreover, the loss of existing housing stock simply places demands on outlying areas with the associated issues of transportation, public services, and environmental effects.

East End U.S. 101 Corridor (Area F)

The character of East End U.S. 101 Corridor is determined primarily by the highway: the area is dominated by signs and highway-related uses common to strip commercial development. There are also a number of tourist accommodations located in the area, but the benefits of their proximity to the Old Town Residential and the Central Waterfront districts are offset by poor access and the uneven quality of the intervening built environment. Overall, the rather low visual quality along this corridor constitutes a serious liability for the city.

Bridge Residential (Area G)

The Bridge Residential district is located to the east of the Old Town Residential district. This district is isolated from the balance of the city by the U.S. 101 corridor and severed into two smaller, self-contained units by State Route 255. The district is characterized by well-maintained smaller residential units interspersed with a limited number of professional office conversions.

East Waterfront (Area H)

The East Waterfront area has high development potential. The district is located directly across the inner channel from the active and picturesque Woodley Island Marina, is adjacent to the Old Town Residential area, and contains large areas of vacant land. Currently, the character of development in the East Waterfront is largely undefined, with only two commercial fishing facilities and the Adorni Center located there.

New development in the East Waterfront area should address four issues: (1) avoiding disruption of the commercial fisheries facilities through either inappropriate development types or facility upgrading; (2) protecting views of the inner channel from the Old Town Residential district; (3) maintaining public access to and along the shoreline; and (4) capitalizing on the amenities of the Woodley Island Marina in determining an appropriate type and configuration of new development.

West End U.S. 101 Corridor (Area I)

The West End U.S. 101 Corridor is very similar in character to the East End U.S. 101 Corridor. Like its companion district, tourist accommodations and restaurants lack pedestrian connections to the downtown core, thus isolating them from other commercial destinations. The low intensity of development creates both an automobile-dependent district, and an unfriendly environment for pedestrians.

Issues in this area include upgrading the overall visual quality of the corridor, increasing the intensity of use, and achieving pedestrian linkages with adjacent areas within the Central Core.

West End Commercial (Area J)

The West End Commercial district, located directly inland from the Working Waterfront and contiguous to the Eastern edge of the Old Town Mercantile district, is a commercial and light industrial area. There are a number of vacant or underutilized parcels, as well as some derelict and neglected properties. Proximity to the Working Waterfront and Old Town makes this a strategic area for development that can serve both maritime and tourist interests.

The primary issue for new development in this area is to insure that it does not adversely affect the economic viability of the nearby fisheries and other maritime uses. The continued well-being of these uses is central to increasing tourism within the Old Town Mercantile district and attracting coastal-dependent development to the Central Waterfront. As such, this district must play an important role in increasing the level of both economic and pedestrian activity in the central city.

Working Waterfront (Area K)

The Working Waterfront district stretches from C Street to the Eastern edge of the Small Craft Harbor, with an inland boundary along 1st Street and Waterfront Drive. As the principal remaining segment of active coastal-dependent uses in the central city, this district is characterized by its variety of older waterfront commercial and industrial buildings as well as by the more modern, City-owned EDA building.

Maritime facilities and uses make this district the most active and interesting of the three waterfront districts. These activities constitute a potential source of significantly increased pedestrian activity, which could play an important role in revitalizing and activating the Central Waterfront and Old Town Mercantile districts.

The primary issue in the Working Waterfront district is the maintenance of the economic viability of existing maritime uses. Inasmuch as this is a working waterfront, its economic health depends upon maintaining lower rents. Therefore, no effort should be undertaken to physically upgrade the area other than maintaining existing buildings and bringing derelict buildings up to level of occupancy appropriate for maritime waterfront uses. This is true of both the existing buildings and the Small Boat Basin, which is in need of repair but which should remain as a fishing boat harbor and not be enhanced to become a recreational facility. Although maritime facilities in the Working Waterfront district are somewhat removed from the Central Waterfront and Old Town Mercantile districts, they constitute an important tourist destination that should be linked to the core area.

Woodley Island (Area L)

Woodley Island is a 60-acre island consisting of a 233-boat capacity recreational and commercial marina, associated administrative buildings, a restaurant, a boating supply store, and parking. The balance of the island is undeveloped land, much of which is wetland or tideland area. In addition to its economic significance, the Woodley Island Marina provides an important recreational and scenic/visual amenity and serves to give considerable visual interest to the central and north waterfront areas.

ACTIVITY PATTERNS

Activity patterns characterize the location and extent of urban activities. These patterns may overlap and several may occur within a given area. Well-defined activity patterns reinforce each other and give greater coherence to the built environment. They also create ambience that attracts ancillary uses that benefit from their proximity. There are five activity patterns relevant to Eureka's Core Area. These are 1) retail activity, 2) service activity, 3) entertainment and cultural activity, 4) restaurants, and 5) visitor accommodations. These activity patterns are discussed below.

Retail Activity

The activity pattern generated by retail uses is concentrated along four primary streets: 2nd and 5th Streets, and E and F Streets. There are two concentrations of retail uses: a Downtown concentration delineated by 4th, 6th, D and H Streets; and an Old Town Mercantile concentration delineated by 2nd, 3rd, D, and F Streets. The balance of retail uses within the central city are distributed sparsely throughout the area. Inasmuch as retail uses largely shape the pattern of sustained pedestrian activity within a commercial core area, this pattern warrants further elaboration. As shown in Figure 3-3, the pattern created by these two concentrations of retail use and their F Street linkage is one that is H-shaped rather than one that is compact like a square or rectangle. This H pattern serves to dilute pedestrian activity and generates a more diffused parking demand. Pedestrians wishing to walk the entire retail core must therefore walk a considerably larger perimeter due to the legs on the H-shaped pattern.

Service Activity

Professional uses are more diffused than retail uses, although there is a concentration delineated by 5th, 6th, D, and K Streets. Other streets with higher numbers of professional offices are E, F, I, J, and 3rd Streets. In general, this use-type is quite spread out, although there are some small pockets within this diffuse pattern. Professional offices do not generate the number of pedestrians that are associated with retail areas, but by occupying upper-floor space in retail districts, professional uses add considerably to the pedestrian life and the economic strength of an urban core, particularly during lunch hours. Inasmuch as the pattern of use in Eureka is diffuse and the only concentration is quite linear, the pattern of professional use is not contributing substantially to the commercial core area.

Many governmental services are obviously housed within the county and city office buildings, thus there is a concentration delineated by I, K, 5th, and 6th Streets. However, there are numerous other governmental services with offices spread throughout the core area. There is a lesser concentration delineated by 4th, 7th, H, and L Streets, but the balance of the facilities are thinly-spread throughout the area, sometimes with one office per block and up to three blocks apart. Since most governmental offices and services are located several blocks from the commercial core, they do not contribute significantly to the life of this key part of the city.

There is no concentrated activity pattern generated by medical services within the greater core area. The pattern is very diffuse, but with the greatest number of facilities delineated by 5th, 9th, E, and J Streets. Medical uses are similar to professional uses in terms of their modest contribution to the vitality of urban areas. In general, their clientele is less likely to contribute to pedestrian life, although employees do so, particularly during lunch hours.

Cultural and Entertainment Activity

The Old Town Mercantile district defined by E, G, 1st, and 3rd Streets contains a cluster of galleries and other cultural uses that constitute the basis for a vital arts and culture district. In recognition of this fact, the City of Eureka designated the "Main Street" program area (which includes the Old Town Mercantile district) as a cultural arts district in Summer 1993. This cultural arts district, and the expansion of arts and cultural facilities that it encourages, greatly enhance the attractiveness of the Old Town Mercantile area to tourists, and increase the overall level of pedestrian activity. The balance of cultural uses within the central city is quite limited and diffuse. As such, strategic siting of a performing arts complex could have a major beneficial effect on the entire area.

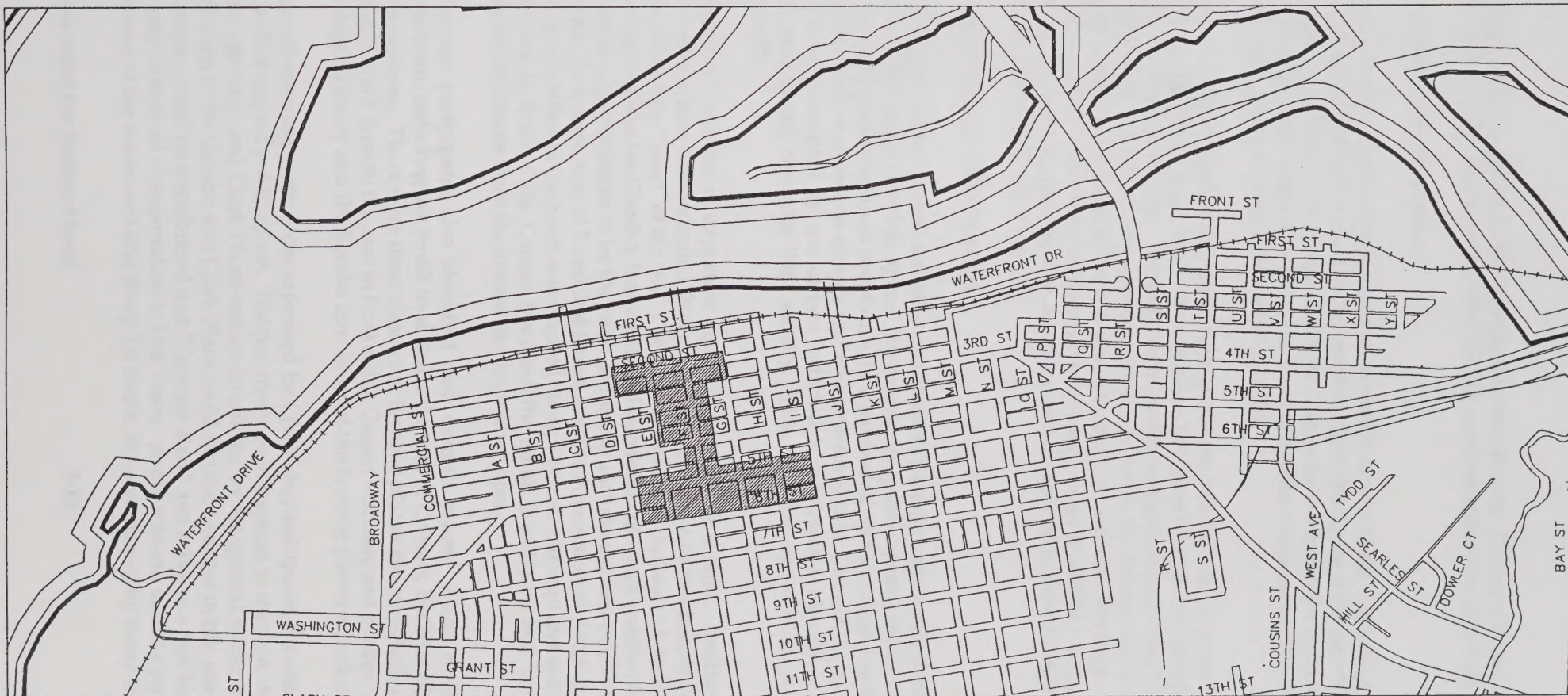
Other than restaurants, entertainment opportunities are quite limited in the central core area. Aside from the few bars and clubs along F, 2nd, and 3rd Streets, there is no definitive pattern or concentration of entertainment uses that attracts people to the Core Area.

Restaurants

There are two concentrations of restaurants in Eureka's Core Area. The first is delineated by C, F, 2nd and 3rd Streets in Old Town, and the second is delineated by E, G, 3rd, and 6th Streets in Downtown. This pattern is largely consistent with, and thus reinforces the dominant pattern of retail uses in the area. As would be expected, a number of restaurants are found along the U.S. 101 corridor, but most do not contribute to the life of the central city due to their distance from the Core Area.

Visitor Accommodations

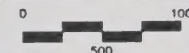
The tourist lodging pattern is defined by the U.S. 101 corridor along 4th and 5th Streets with a few notable exceptions--the Eureka Inn bounded by 6th, 7th Streets, F, and G Streets, and bed and breakfast



■ Area of greatest concentration

Source: Mintier & Associates, 1993

CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Mintier & Associates, June 1993

FIGURE 3-3
CONCENTRATIONS OF RETAIL
USES IN THE CORE AREA

establishments within the Old Town Residential district. There are loose clusters of tourist lodging at both the eastern and western ends of the U.S. 101 corridor within the central city.

Composite Activity Pattern

Figure 3-4 shows the composite pattern of distribution of these five use-types on a block-by-block basis for the Core Area and environs. The darker shading in this figure indicates a higher concentration of composite uses using the block as the unit of analysis. Figure 3-5 examines the composite activity pattern on the basis of street segments rather than by blocks, since pedestrians experience the urban environment along the paths and public space defined by the street system.

These two figures underscore three major problems in the urban form and structure of Eureka's Core Area. First, the area is too large, and thus too diffuse, to support the levels of activity necessary to create a vital and thriving downtown core. Second, the irregular configuration of the most active part of this large area, combined with the relatively low-intensity of use within the balance of the area, serve to diffuse pedestrian energy and make it more difficult to generate an active and safe core area. Third, Figure 3-5 shows that the system of more active street segments is even more irregular and has a longer perimeter than is revealed in Figure 3-4. In the aggregate, then, a major urban design task is the realization of a more regular and compact form for Eureka's Core Area.

PUBLIC SPACE AND PLACES

The degree to which urban activities contribute to the safety and vitality of an area depends on the location and configuration of public space. Well-designed public space located in strategic areas of a downtown encourages pedestrians and transforms their patterns of activity into places that are appealing and vital. This results in urban areas that are safe and economically active. Conversely, poorly-designed public space that is easily preempted by one or two individuals (too often a vagrant or substance abuser) discourages pedestrians and truncates their activity. This results in urban areas that are lifeless and economically stagnant.

There are a number of important places in Eureka's Core Area. Residents attending the Urban Design Charrette in June 1993 indicated their place preferences as a part of the public process. Charrette participants first located the "heart" of the city. The place identified as the heart of the city by two-thirds of the Charrette participants was the Gazebo, located at the intersection of F and 2nd Streets. Other places considered by a number of participants to be the heart of the city include the foot of F Street, 2nd Street between E and F Streets, the intersection of E and 2nd Street, and the intersection of F and 3rd Street. Over two-thirds of the places identified as the heart were located along F Street. Other places of note included the Adorni Center, the area in front of the Carson Mansion, the Small Boat Basin, and the County Building, all locations somewhat remote from the immediate downtown area.

Charrette participants also identified their favorite places. Many residents identified sites along the waterfront, including the Small Boat Basin, the foot of C Street, the Foot of F Street, and the Adorni Center and environs. There were three clusters of favorite places: the two-block area between 1st and 3rd Streets along E and F Streets; the area in front of the Carson Mansion; and pockets along F Street, including the old Carnegie Library and the Eureka Inn. Most of the favorite places were located within Old Town.

Notwithstanding preferences expressed by Charrette participants, Eureka's Core Area suffers from a lack of well-designed public space. The two major public spaces in the Core Area--the Gazebo (the Old Town Carriage Stop) and Clark Plaza--are underutilized by the general public and act as magnets for vagrants. Redesign of the Gazebo and Clark Plaza could facilitate greater public use of these areas. The Gazebo, for example, could be transformed into "Carriage Park" and serve as a hub for carriage rides and other forms of non-motorized transportation in Old Town. Areas adjacent to these public spaces, particularly derelict sections of the waterfront and along 1st Street, are also viewed by many Eureka residents as problem places to be

avoided. The lack of safety and vitality in these places has compromised the attractiveness of the entire Core Area for both pedestrians and investors.

PARKING

Parking is always an issue in downtown areas; there never seems to be enough convenient parking. Many people prefer shopping malls for just this reason. The perceived parking convenience of the shopping mall (where the actual distance between parking and eventual destinations may well be greater than in downtown settings) is due in large part to the fact that once a customer leaves the parking lot there are no more motor vehicles with which to contend. There are no streets to cross and no parking lots to walk past, only stores and throngs of shoppers.

Cities with successful downtown areas have learned to design parking so that it does not interrupt the continuity and intensity of commercial activities. Recent adaptations in the provision of structured parking illustrate this point. Whereas parking structures in many downtown areas have historically occupied strategic sites and preempted commercial uses from major segments of street frontage, contemporary parking structures are increasingly incorporating retail stores along the street frontage at the ground floor. This strategy combines the convenience of centralized parking with the urban design considerations discussed above, thus providing parking without destroying the urban fabric and reducing the attractiveness to pedestrians.

There is also an aesthetic component to the Downtown parking issue. Parking lots are dominated by a continuous area of automobiles and asphalt that is unappealing to the pedestrian. Vegetation screening has serious limits since both driver and pedestrian visibility is reduced and public safety is compromised. A tree canopy within the parking lot, combined with an attractive landscape border can serve to reduce, but not eliminate, the adverse visual impact of surface parking within an urban core area.

Parking lots, both public and private, occupy a significant part of Eureka's Core Area. Nearly all public parking lots are located at street corner locations, thus creating the sense of a diffuse built environment. Concentrations of parking lots in some areas constitute major interruptions to the fabric of the downtown, creating conditions where commercial activities are not attractive to pedestrian traffic. Few Old Town Mercantile and Downtown streets are immune from the interruptions of parking lots, most notably along four-block segments of F Street and 2nd Street. There is a five-block segment on the south side of 5th Street that is uninterrupted by parking lots, but the north side segment is only three-and-one-half blocks in length. Furthermore, most public and private parking lots have insufficient landscaping to mitigate their negative visual impact. Participants in the Urban Design Charrette identified H, I, and J Streets, between 4th Street and the Waterfront, as possible locations for diagonal parking. Conversion of parking along these streets to diagonal parking would increase the number of parking spaces in the core area, and such spaces would be well located to serve people traveling to the core area on the one-way couplet formed by H and I Streets.

LANDMARKS

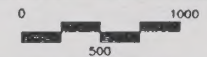
Landmarks are visually prominent and distinctive elements in the cityscape. They include buildings, topographic or other landscape features, monuments, or other widely visible objects that serve as reference points for pedestrians and motorists.

Most significant landmarks in Eureka are located in Downtown and Old Town. Many prominent and distinctive buildings are located on F Street and on 2nd Street, including the Carson Mansion. Notable landmark buildings are also sited on E, G, and 5th Streets, including the distinctive tower of St. Bernard's Church. There are also significant landmarks outside of the Core Area, including the Fisherman's Statue on Woodley Island, the Small Boat Basin, the Samoa Bridge, the County Building, and the stacks on the Simpson and Louisiana-Pacific plants.



-  Medium Activity
-  High Activity
-  Primary Retail Street

CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Minter & Associates, June 1993

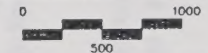
**FIGURE 3-4
PEDESTRIAN ACTIVITY
CONCENTRATION**

Source: Mintier & Associates, 1993



- High Concentration
- Medium-High Concentration
- Medium Concentration
- Low-Medium Concentration
- Low Concentration

CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Mintier & Associates, June 1993

**FIGURE 3-5
PEDESTRIAN ACTIVITY ON
STREET FRONTAGE**

Source: Mintier & Associates, 1993

HISTORIC SITES AND BUILDINGS

The character and quality of architecture contributes greatly to the image and ambience of a city. Coherent architectural styles create a coherent cityscape and provide residents and visitors with a visually interesting and appealing built environment.

Eureka has over 8,000 historic and architecturally significant structures which contribute significantly to its character. Many of Eureka's Victorian, Queen Anne, Stick/Eastlake, Italianate, and Neo-Classical buildings are listed on the National Register of Historic Places. These buildings define the character of entire areas within the city. Old Town has been designated a National Historic District. Downtown and the Central Waterfront also contain high concentrations of older and historic buildings that have a strong and pervasive influence on the overall ambience and quality of these key areas. Surrounding residential neighborhoods also contain a number of historic buildings. Individually and in the aggregate, historic buildings establish important precedents in terms of the scale, grain, texture, and color of the built environment. Eureka's stock of buildings is a visual resource of immense appeal to tourists and its preservation and enhancement should be an integral part of the economic and physical revitalization of the central city. See Chapter 8, Recreational and Cultural Resources, for an extended discussion of Eureka's historic resources.

CITY ENTRIES

Discernible entries are as important to cities as front doors are to houses or businesses. They announce arrival, they introduce an element of quality, and they delineate passage into another environment. Successful city entries are much more than signboards marking city limits or announcing the meeting times of civic organizations. They alert the traveler to the sense of civic pride in the public environment. As such, city entries warrant careful and considered attention in providing important visual information for residents and visitors alike.

Given the extensive undifferentiated commercial development along virtually the entire length of the U.S. 101 corridor, it is difficult to discern any definitive point of entry into Eureka. The considerable length of the corridor and its generally undistinguished visual character raise complex questions regarding the appropriate locations for overall city entries and for specific entries into Old Town and Downtown. Also, because the highway splits into a one-way couplet system, the entries for northbound and southbound traffic must be dealt with separately.

SCENIC ROUTES

Scenic routes are an important means of calling attention to the visual quality of both built and natural environments. They are a natural extension of the form and structure of the urban pattern. Vistas of significant buildings or attractive natural features can be enhanced through the provision of scenic routes, and proximity to continuous areas of high scenic value greatly increases the perception of a high quality urban area. Beautiful coastal scenic routes such as those in Monterey and Pacific Grove contribute substantially to the perception of a high quality environment in those cities.

The 1977 General Plan Scenic Route Element establishes policies, principles and standards, and plan proposals for the realization of such a system for Eureka. Unfortunately, the results of investment in such a route is not yet visible, although some segments of a Waterfront Drive have been constructed. The overall visual quality along the currently designated scenic routes is quite low within the urban area.

The 1984 Local Coastal Program also establishes policies related to scenic quality in the Eureka area through the designation of scenic vista points. These locations should be carefully analyzed and where appropriate, integrated into the planning and development process.

Finally, the 1990 Eureka Waterfront Facilities Plan sets forth plans for streetscape improvements along Waterfront Drive and 1st Street. The visual and scenic qualities of this key scenic route would be greatly enhanced if improvements such as those recommended in the 1990 plan were incorporated into an overall urban design plan for the waterfront area and then implemented in a timely manner.

FINDINGS

- The Humboldt Bay shoreline, the Coast Range foothills, the gulches that traverse the city, and the slough system along the Northeastern shoreline serve as natural barriers to development, and thus have served and will continue to serve as major determinants of urban form. Future expansion is thus likely limited to the foothills to the south.
- Natural features such as Humboldt Bay, the Coast Range foothills, and the gulches that traverse the area also constitute major scenic amenities that enhance the city's character and sense of place.
- Humboldt Bay and the islands off the central waterfront area constitute major scenic amenities and thus areas with open views of these natural features warrant special attention in terms of public access--both physical and visual--and in determining the appropriateness of development types.
- The impressive stock of historic commercial and residential buildings in Eureka contribute significantly to the character and appeal of the city.
- The regular grid street pattern that defines the older portion of the city gives strong structure and orientation to the city.
- Taller building heights and proximity to the central waterfront give clear definition and a distinct identity the central commercial area, although the economic and pedestrian vitality of the area is low. This Core Area is strategic to the overall functioning of the city.
- There is a pronounced differentiation of residential character between the older section of the city as defined by the grid street pattern, and the newer residential areas situated in the outlying forested, foothill areas.
- State U.S. 101 serves as a key organizing element within the built environment, creating a long, narrow commercial corridor along virtually its entire alignment within the city. Recent outlying commercial development along the Broadway segment of this corridor has had a major adverse impact on both the economic viability and the visual character of the core area.
- The visual quality of the U.S. 101 corridor is very low and warrants major urban design attention, particularly at points or areas of strategic access and egress, such as points of entry into the core area and the waterfront and historic district.
- City entries are undifferentiated within the U.S. 101 corridor, thus there is no clear point or sense of arrival that reveals the many positive qualities of the city. In contrast, the historic entry via the inner reach of the Bay is well defined and picturesque.
- A considerable potential exists for the creation of highly attractive scenic routes within the city, however great attention must be paid to upgrading the quality of the built environment along the designated alignments, and to providing ample opportunities for travelers to stop and enjoy more direct access to the scenic amenities.
- Building heights and massing and the regular grid street pattern provide excellent scale and structure to the urban core.
- This scale and structure, combined with the outstanding quality of many of the buildings, contributes significantly to the small-town character that is so highly valued by local residents and sought after by many tourists.

- The outstanding stock of historic buildings--both mercantile and residential--is fundamental to the visual character of the urban core, and contributes significantly to the ambience of small-town character.
- In spite of many buildings of architectural and historical merit, the Central Waterfront, Old Town, and the Downtown lack coherence as the city's urban core. There are qualitative differences in amenity levels among the three areas.
- There is no coherent landscape planting pattern that either unifies Old Town and Downtown or clearly differentiates between the street hierarchy, thus there is a lack of visual continuity throughout the Core Area. Moreover, street trees in the Core Area are not adequately maintained, and some species appear ill-suited for the setting (i.e., in terms of both ecological and social considerations, such as creating dark and overgrown areas).
- Within the greater urban core area, commercial and retail uses, and governmental services are diffuse and spread out. The primary pedestrian area is defined by an irregular configuration with a lengthy perimeter. Patterns of use are not sufficiently concentrated to create a vital pedestrian core within the central city.
- The Central Waterfront area, much of which is currently abandoned and in a state of neglect and disrepair, provides the basis for a revitalized working waterfront, and thus holds the key to the revitalization of the urban core area.
- The type and magnitude of existing core area housing opportunities is severely limited, thus there are too few residents to create a 24-hour community where pedestrian vitality and the resultant level of public safety would be increased.
- Unreinforced Masonry Buildings (URMs) within the F and G Street corridor are the most dominant structures. Unless these buildings are retrofitted to protect against earthquake loss, the most intensive area of the urban core could be destroyed (including all contiguous wood frame buildings); long-term recovery from such an event would be extremely costly and problematic.
- The urban fabric is interrupted by surface parking lots at a number of major intersections, thus diluting the level of commercial and pedestrian activity and reducing the vitality of the area.
- Most participants at the June 1993 Urban Design Charrette identified the Gazebo Plaza as the heart of the urban core area, with most favorite places located in a rather contained section of Old Town. Derelict waterfront buildings, the bars and clubs near 2nd and D Street, the Vance Hotel, and the poorly maintained housing on 2nd Street between H and J Streets were identified as problem areas.
- The major public spaces in the urban core--the Gazebo and Clark Plaza--are often occupied by vagrants, the homeless, and substance abusers. These areas require design attention--even redesign-- to make them less easily dominated by this population and more attractive to and utilized by the general public.
- Eureka has a large and active arts and culture community, although its expression within the Core Area is relatively modest.

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CHAPTER 4

POPULATION



INTRODUCTION

This chapter describes Eureka's population in terms of current conditions, trends, and projections. The information contained in this chapter comes primarily from the U.S. Census Bureau, the California Department of Finance (DOF), and the Humboldt County Association of Governments (HCAOG).

This chapter is divided into seven sections. The first section summarizes historic population growth. the second section discusses comparative household growth. The third section discusses household projections. The fourth section describes population and household characteristics. The fifth section is a set of findings related to population in the General Plan Planning Area. Finally, the sixth and seventh sections lists bibliographic references and persons consulted in the course of preparing this chapter.

HISTORICAL POPULATION GROWTH

The Town of Eureka was founded in 1850 and incorporated as the City of Eureka in 1856. Eureka prospered in early days due to its harbor and sawmills. According to the U.S. Census Bureau, Eureka had a population of 617 in 1860. In 1895, Eureka annexed large tracts of land almost tripling the area within its city limits; by 1900, Eureka's population had grown to 7,327. During the first half of the century, Eureka experienced substantial population growth, with major growth surges between 1900 to 1910 and then again during the World War II period. By 1960, Eureka's population had grown to 28,157. During the following two decades, however, Eureka's population declined. By 1980, Eureka had only 24,153 residents.

In 1993, Eureka had an estimated population of 28,264. This represents a modest 11.7 percent increase in population overall and an average annual compound growth rate of 1.22 percent between 1980 and 1993. Table 4-1 shows Eureka's historic population growth from 1860 through 1990, and Chart 4-1 depicts this growth graphically.

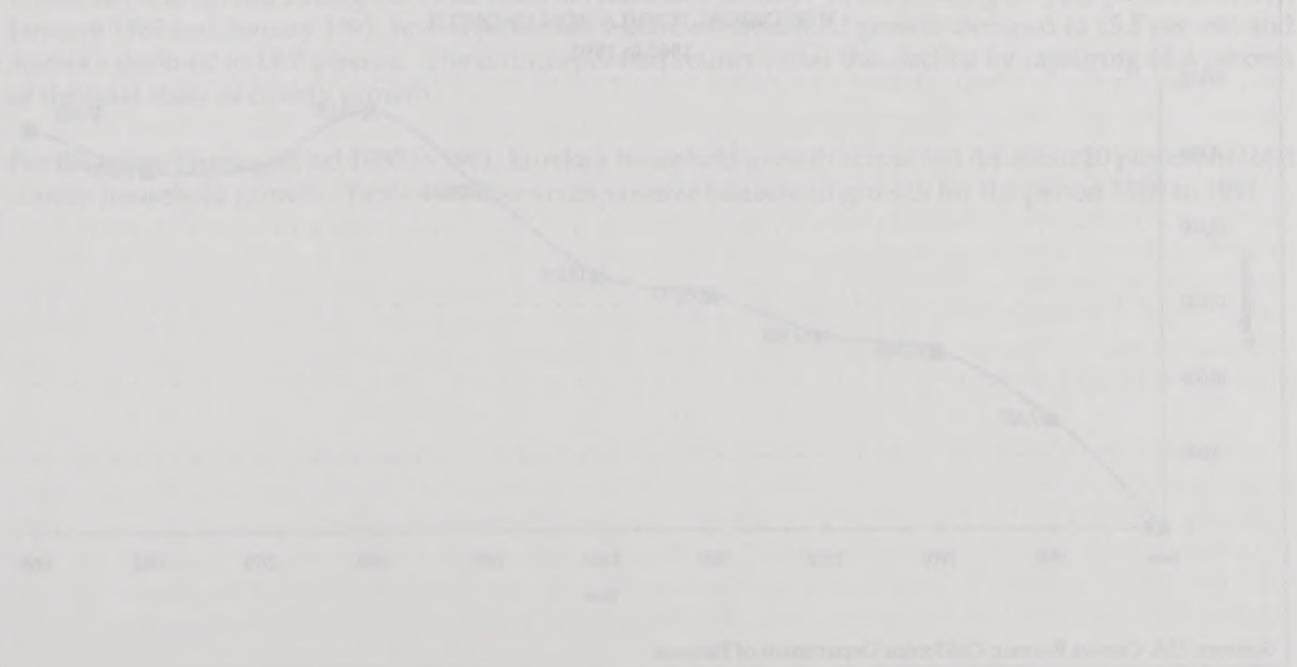


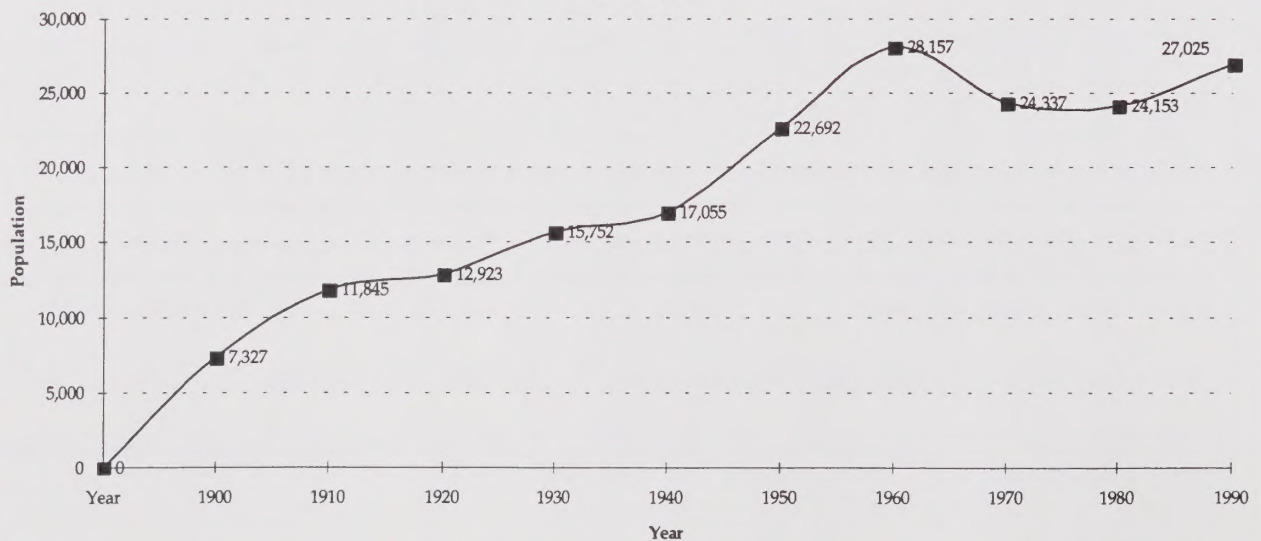
TABLE 4-1

HISTORICAL POPULATION GROWTH
City of Eureka
1860-1992

Year	Total Population	Group Quarters Population	Total Households	Population per Household	Percent Change in Total Population
1860	617	--	--	--	--
1900	7,327	--	--	--	--
1910	11,845	--	--	--	61.7
1920	12,923	--	--	--	9.1
1930	15,752	--	--	--	21.9
1940	17,055	--	--	--	8.3
1950	22,692	--	--	--	33.1
1960	28,157	--	--	--	24.1
1970	24,337	--	--	--	-13.6
1975	24,700	--	--	--	1.5
1980	24,153	639	10,121	2.32	-2.2
1981	24,357	644	10,202	2.32	0.8
1982	24,708	701	10,332	2.32	1.4
1983	24,691	721	10,380	2.31	-0.1
1984	25,042	753	10,531	2.31	1.4
1985	25,187	775	10,609	2.31	0.6
1986	25,349	781	10,733	2.29	0.6
1987	25,653	829	10,813	2.30	1.2
1988	26,101	867	10,929	2.31	1.7
1989	26,627	832	11,062	2.33	2.0
1990	27,025	896	11,137	2.35	1.5
1991	27,344	893	11,197	2.36	1.2
1992	27,829	958	11,342	2.37	1.8
1993	28,264	993	11,456	2.38	1.6

Sources: U.S. Census Bureau; California Department of Finance

CHART 4-1
HISTORICAL POPULATION GROWTH
1860 to 1990



Sources: U.S. Census Bureau; California Department of Finance

Eureka's share of total county population declined between 1970 and 1980, dropping from 24.4 percent to 22.3 percent in 1980. By 1990, this share had increased slightly to 22.7 percent. These numbers suggest a slight shift in the share of county population growth during the last 20 years from Eureka to other areas of the county. Table 4-2 shows Eureka's share of total county growth from 1970 through 1990.

TABLE 4-2					
EUREKA'S SHARE OF TOTAL COUNTY POPULATION GROWTH 1970-1990					
Year	Eureka	Percent Change	Humboldt County	Percent Change	Eureka as Percent of Humboldt County
1970	24,337	--	99,692	--	24.4
1975	24,700	1.5	105,030	5.4	23.5
1980	24,153	-2.2	108,525	3.3	22.3
1985	25,187	4.3	110,453	1.8	22.8
1990	27,025	7.3	119,118	7.8	22.7

Source: U.S. Census Bureau; J. Laurence Mintier & Associates

Eureka is actually a much larger metropolitan area than suggested by these numbers when the surrounding unincorporated population is considered. An estimated 25,000 persons live in the urbanized areas of the unincorporated county adjacent to Eureka. With a population of approximately 50,000, Eureka and adjacent unincorporated urbanized areas constitute the largest urban area on the Pacific Coast between San Francisco and Portland.

COMPARATIVE HOUSEHOLD GROWTH

The shift in growth from Eureka to other areas of the county becomes more evident when Eureka is compared to other Humboldt County cities and to the unincorporated county in terms of household growth. In the five-year period between January 1980 and January 1985, household growth in Eureka accounted for 29.2 percent of total county growth, Arcata accounted for 35.7 percent of the growth, the unincorporated county accounted for 15.9 percent of the growth, and Fortuna accounted for 13.2 percent of the growth. The remainder was spread among the other cities in Humboldt County. In the ensuing six-year period between January 1985 and January 1991, however, Eureka's share of household growth declined to 15.5 percent and Arcata's declined to 19.7 percent. The unincorporated county offset this decline by capturing 48.4 percent of the total share of county growth.

For the entire 11-year period 1980 to 1991, Eureka's household growth accounted for about 20 percent of total county household growth. Table 4-3 shows comparative household growth for the period 1980 to 1991.

TABLE 4-3
COMPARATIVE HOUSEHOLD GROWTH
Humboldt County Cities and Unincorporated County
1980 and 1991

1980 to 1985	1980 Households	1985 Households	Household Change	Percent Household Change	Share of Total Household Change
Arcata	4,819	5,415	596	12.4	35.7
Blue Lake	456	481	25	5.5	1.5
Eureka	10,121	10,609	488	4.8	29.2
Ferndale	541	575	34	6.3	2.0
Fortuna	2,862	3,083	221	7.7	13.2
Rio Dell	1,018	1,048	30	3.0	1.8
Trinidad	171	182	11	6.4	0.7
Unincorporated	21,584	21,849	265	1.2	15.9
Total County	41,572	43,242	1,670	--	100.0
1985 to 1991	1985 Households	1991 Households	Household Change	Percent Household Change	Share of Total Household Change
Arcata	5,415	6,161	746	13.8	19.7
Blue Lake	481	508	27	5.6	0.7
Eureka	10,609	11,197	588	5.5	15.5
Ferndale	575	564	-11	-1.9	-0.3
Fortuna	3,083	3,581	498	16.2	13.1
Rio Dell	1,048	1,165	117	11.2	3.1
Trinidad	182	171	-11	-6.0	-0.3
Unincorporated	21,849	23,684	1,835	8.4	48.5
Total County	43,242	47,031	3,789	--	100.0

Source: California Department of Finance; J. Laurence Mintier & Associates

HOUSEHOLD PROJECTIONS

The Humboldt County Association of Governments (HCAOG) makes projections of household growth in conjunction with its responsibility to determine housing needs for Eureka. Absent data suggesting otherwise, household projections are made by HCAOG using a trend line method that assumes the future share of Eureka's growth will be a linear extension of historical trends. As the above analysis indicates, the California Department of Finance (DOF) reported that Eureka experienced a 10 percent increase in the number of households (i.e., an annual average growth rate of 0.9 percent) representing a 20 percent share of total household growth in the county in the eleven-year period between 1980 and 1991. HCAOG projects that Eureka will continue to capture 20 percent of total county growth and will add 886 households in the 6½-year period between 1991 and 1997 (covering the state-mandated planning period for housing elements). This represents an 8 percent increase in the number of households (i.e., a compounded annual average growth rate of 1.3 percent).

A closer analysis of DOF figures for the 1980 to 1991 period, however, indicates that Eureka's share of total county household growth for the period may have been significantly less than reported by DOF. According to an analysis done by the City, Eureka's share of total county household growth was only approximately 12 percent for the period between 1980 and 1991. Projections for Eureka based upon a 12 percent share of the total county household growth indicate that the city will add 532 households in the 6½-year period between 1991 and 1997 (354 households less than the HCAOG projection indicates). Furthermore, Eureka

has a limited amount of residential land available for development. According to a survey completed by the City in August 1992, there is only enough vacant residential land in Eureka to accommodate approximately 300 housing units.

Table 4-4 shows HCAOG households projections for Humboldt County cities and the unincorporated county. Table 4-5 shows comparative household projections based on 10 and 20 percent shares of total county growth, and Chart 4-2 graphically compares household projections based on 10 and 20 percent shares of total county growth.

TABLE 4-4
HCAOG HOUSEHOLD PROJECTIONS FOR HUMBOLDT COUNTY CITIES
1991 to 1997

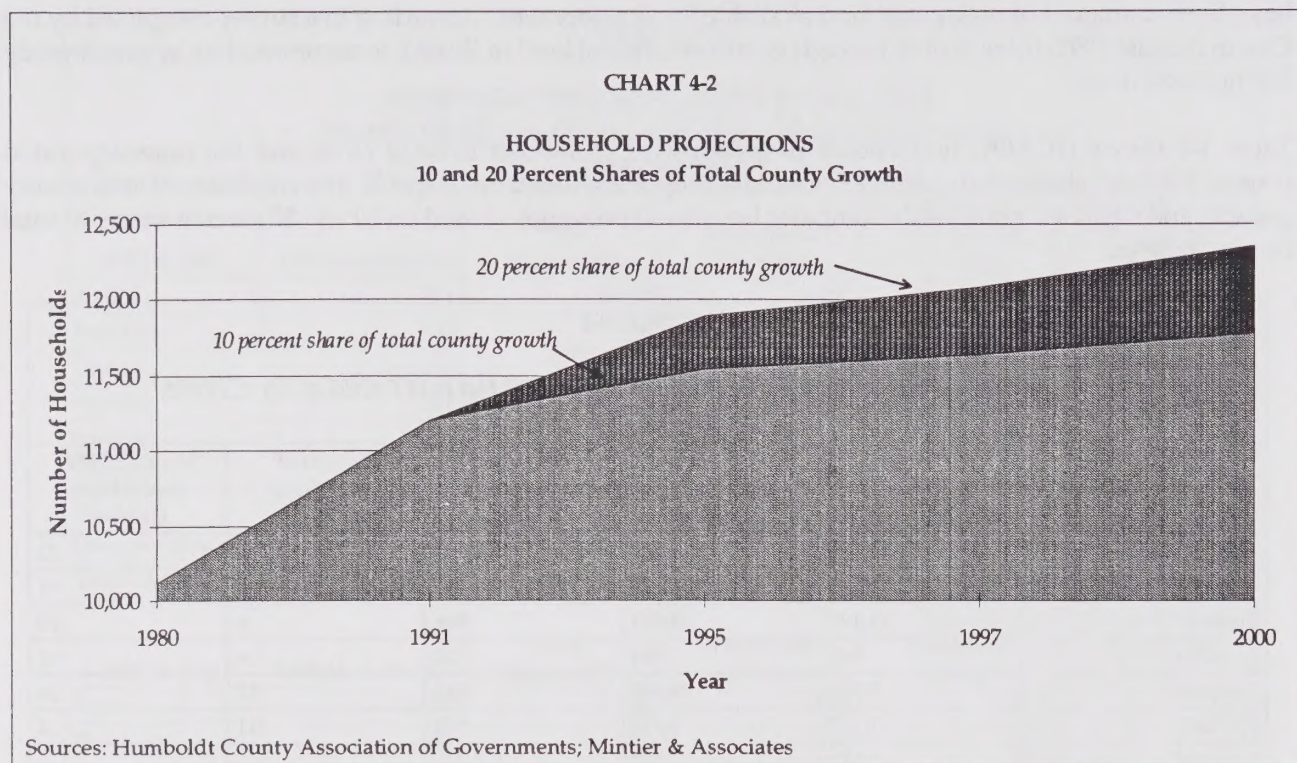
	1991 Households	1997 Households	Household Change	Percent of Household Change	Share of Total Household Change
Arcata	6,161	7,125	964	16	22
Blue Lake	503	525	22	4	<1
Eureka	11,197	12,083	886	8	20
Ferndale	564	586	22	4	<1
Fortuna	3,581	4,202	621	17	14
Rio Dell	1,177	1,310	133	11	3
Trinidad	171	182	11	6	0
Unincorporated	23,714	25,487	1,773	7	40
Total County	47,068	51,500	4,432	--	100

Source: HCAOG; J. Laurence Mintier & Associates

TABLE 4-5
COMPARATIVE HOUSEHOLDS PROJECTIONS FOR EUREKA
10 and 20 Percent Shares of Total County Growth

Year	10 Percent Share	20 Percent Share
1991	11,197	11,197
1995	11,550	11,903
1997	11,640	12,083
2000	11,780	12,363

Source: California Department of Finance; HCAOG; City of Eureka; J. Laurence Mintier & Associates



POPULATION AND HOUSEHOLDS CHARACTERISTICS

The following sections profile the population and household characteristics of Eureka.

HOUSEHOLD COMPOSITION

According to the U.S. Census Bureau, Eureka has a disproportionately large number of single-person households, with almost a full one-third of all households (3,615 households) being single-person households. Of these 3,615 households, 1,373 have one or more persons age 65 or over. In Humboldt County and the state, only roughly one-quarter of households are single-person households. The high number of single-person households is probably due to Eureka's proximity to the Humboldt State University in Arcata and to the higher than average number of elderly households in Eureka. Eureka also has a slightly higher percentage of single mothers than either Humboldt County or the state. Table 4-6 shows household composition for Eureka, Humboldt County, and the state.

TABLE 4-6
HOUSEHOLD COMPOSITION
City of Eureka and Humboldt County
1990

	City of Eureka		Humboldt County		California	
	Number of Households	Percent	Number of Households	Percent	Number of Households	Percent
Single Person	3,615	32.5	12,156	26.2	2,429,867	23.4
Two or More Person						
Married-Couple Family w/ children	2,154	19.3	10,999	23.7	2,791,452	26.9
Married-Couple Family w/o children	2,750	25.7	12,473	26.9	2,678,070	25.8
Male Householder w/ children	234	2.1	1,157	2.5	252,314	2.4
Male Householder w/o children	127	1.1	543	1.2	225,378	2.2
Female Householder w/ children	995	8.9	3,705	8.0	784,315	7.6
Female Householder w/o children	363	3.3	1,209	2.6	407,865	3.9
Non-Family Household	899	8.1	4,178	9.0	811,945	7.8
Total	11,137	100.0	46,420	100.0	10,381,206	100.0

Source: U.S. Census Bureau

POPULATION AGE STRUCTURE

According to the U.S. Census Bureau, Eureka's median age increased between 1980 and 1990 from 31.2 to 34.5 years. This increase in median age generally follows countywide and statewide trends. Nonetheless, the median age in Eureka is still higher than in the county or the state.

A detailed examination of population age distribution in 1980 and 1990 shows the presence of a greater number of persons in the "Under 15" category in 1990, but this increase is largely offset by a decrease in the number of persons in the "15 to 19," "20 to 24," and "25 to 34," categories. These changes suggest there are more families with young children living in Eureka, but that many young adults who grew up in Eureka have left, perhaps seeking greater economic opportunity elsewhere or with parents who lost jobs in the last decade. The greatest change in Eureka's population age distribution between 1980 and 1990 was in the "35 to 44" category, which almost doubled in terms of number from 1980 and increased its share of the total to 16.1 percent, up from 10.2 percent in 1980. Elderly populations increased only slightly. Table 4-7 shows median age in Eureka, Humboldt County, and California for 1980 and 1990. Table 4-8 shows population age distribution in Eureka for 1980 and 1990, and Chart 4-3 graphically depicts Eureka's age distribution in 1980 and 1990.

TABLE 4-7
MEDIAN AGE
Eureka, Humboldt County, and California
1980 and 1990

	1980			1990		
	Total	Male	Female	Total	Male	Female
Eureka	31.2	30.3	32.1	34.5	32.8	36.2
Humboldt County	29.2	28.8	29.6	33.2	32.5	33.9
California	29.9	29.0	31.0	31.7	30.6	32.7

Source: U.S. Census Bureau

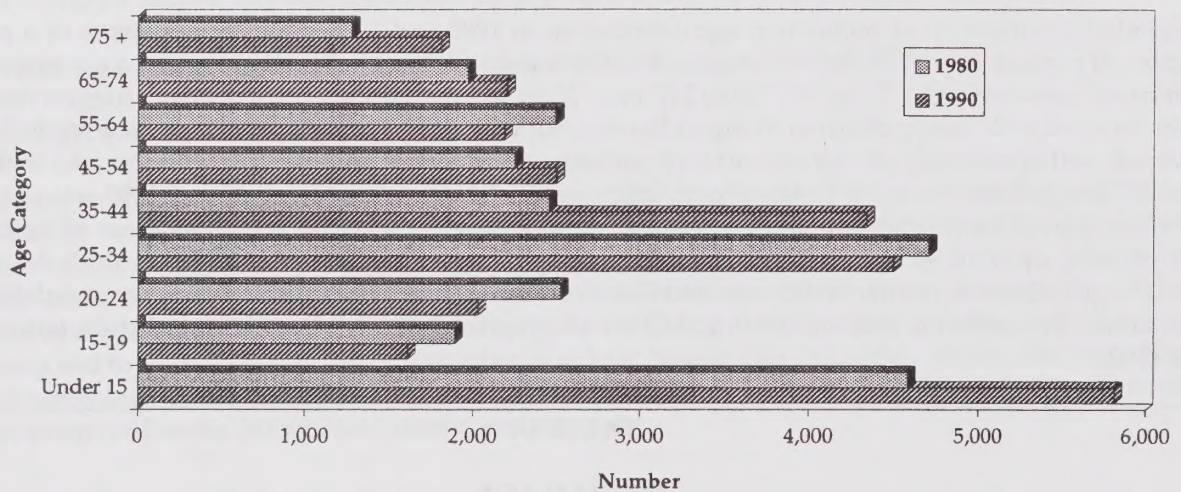
TABLE 4-8
POPULATION AGE DISTRIBUTION
City of Eureka
1980 and 1990

Age Group	1980		1990	
	Number	Percent	Number	Percent
Under 15	4,582	19.0	5,815	21.5
15-19	1,894	7.8	1,614	6.1
20-24	2,523	10.4	2,030	7.5
25-34	4,706	19.5	4,498	16.6
35-44	2,455	10.2	4,339	16.1
45-54	2,250	9.3	2,498	9.2
55-64	2,495	10.3	2,187	8.1
65-74	1,969	8.2	2,203	8.2
75 +	1,279	5.3	1,814	6.7
Total	24,153	100	27,025	100.0

Source: U.S. Census Bureau

CHART 4-3

AGE DISTRIBUTION
City of Eureka
1980 and 1990



Source: U.S. Census Bureau

ETHNICITY

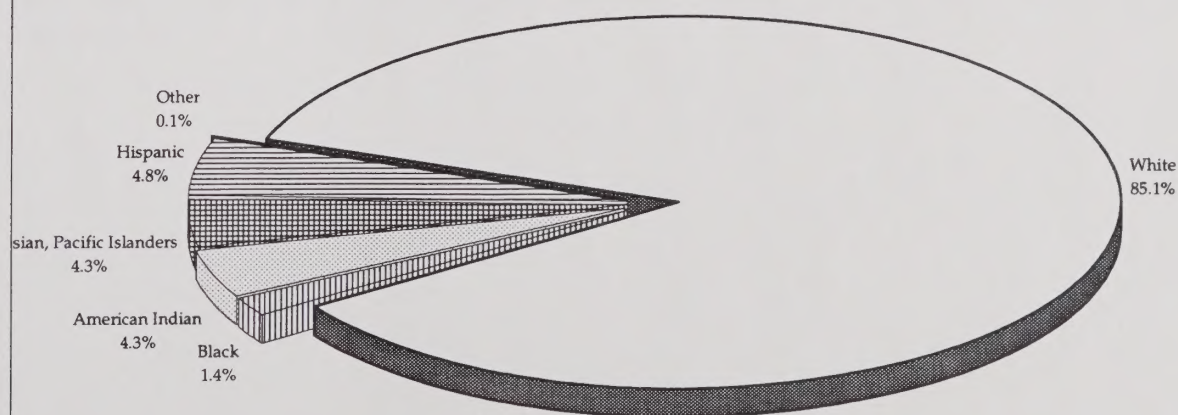
Although Eureka's population remains predominantly white, minority groups make up an increasing share of the population. Between 1960 and 1970, the percentage of minority population doubled from 2.1 to 4.1 percent. By 1980, the percentage of minority persons doubled again to 8.1 percent, and by 1990, minority population made up almost 15.0 percent of the total population. As the largest minority populations, American Indians and Asian/Pacific Islanders each constitute 4.3 percent of total population. Compared to Humboldt County, Eureka has a slightly smaller percentage of American Indians (5.2 percent versus 4.3 percent), but it has a much larger percentage of Asian/Pacific Islanders than the county (4.3 percent versus 1.9 percent). Eureka also has a larger percentage of people who identify themselves as Hispanic than is the case in Humboldt County (4.8 percent versus 4.2 percent). Table 4-9 shows the ethnic profile of Eureka and Humboldt County for 1990, and Chart 4-4 graphically depicts Eureka's ethnic profile.

TABLE 4-9
ETHNIC PROFILE
Eureka and Humboldt County
1990

Ethnicity	City of Eureka		Humboldt County	
	Number	Percent	Number	Percent
White	23,006	85.1	104,671	87.9
Black	380	1.4	934	0.8
American Indian	1,161	4.3	6,188	5.2
Asian, Pacific Islanders	1,160	4.3	2,255	1.9
Hispanic	1,298	4.8	4,989	4.2
Other	20	0.1	81	0.1
Total	27,025	100.0	119,118	100.0

Source: U.S. Census Bureau

CHART 4-4
ETHNIC PROFILE
City of Eureka
1990



Source: U.S. Census Bureau

FINDINGS

- The focus of household growth in Humboldt County shifted from Eureka to other areas of the county between 1980 and 1990. According to the California Department of Finance, Eureka accounted for approximately 30 percent of total county household growth between 1980 and 1985 and accounted for less than 20 percent between 1985 and 1990. More detailed analysis supports the overall trend, but indicates Eureka's share of county growth was much lower during the 1980s than suggested by DOF.
- The Humboldt County Association of Governments (HCAOG) issued fair share housing allocation numbers in October 1992. HCAOG's adjusted housing allocation for Eureka indicates a need for development of 762 housing units between 1991 and 1997. By income category, Eureka would need to add 209 units of very low-income housing (affordable to households with incomes up to 50 percent of area median income), 128 units of low-income housing (affordable to households with incomes up to 80 percent of area median income), 51 units of moderate-income housing (affordable to households with incomes up to 120 percent of area median income), and 374 units of above moderate-income housing (affordable to households with incomes above 120 percent of area median income).
- Eureka had a higher percentage of elderly persons than either Humboldt County or California as a whole in 1990. Approximately 15 percent of Eureka's population was over age 65 in 1990. Twelve percent of all elderly households in Eureka were living in poverty.
- Eureka had a higher percentage of single-women households with children than either Humboldt County or California as a whole in 1990. Approximately 29 percent of Eureka's households were headed by a single mother in 1990. Forty-two percent of all single-women households with children in Eureka were living in poverty in 1990.

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CHAPTER 5

ECONOMIC CONDITIONS AND FISCAL CONSIDERATIONS



INTRODUCTION

This chapter presents an overview of economic conditions in Eureka and Humboldt County. The information in this report comes primarily from the State Board of Equalization, the State Department of Finance, the Employment Development Department, and from recent economic studies of the area.

This chapter is divided into seven sections. The first section summarizes population, labor force, and employment trends. The second section describes the changing economic structure of Humboldt County. The third section discusses trends in the key economic sectors of Eureka's economy. The fourth section summarizes the fiscal structure of Eureka's city government. The fifth section is a set of findings related to economic and fiscal considerations. Finally, the sixth and seventh sections list bibliographic references and persons consulted in the course of preparing this chapter.

POPULATION, LABOR FORCE, AND EMPLOYMENT TRENDS

According to the California Department of Finance, population growth in Eureka and in Humboldt County has been slow historically, lagging well behind growth in the state as a whole. While growth rates in both Eureka and the county increased in the late 1980s and early 1990s, they have remained well below the state growth rate. For the period 1980 through 1993, the average annual compound population growth rate for the state was slightly over 2.2 percent while the growth rate for Humboldt County and Eureka was about 1 percent.

Most forecasts for Humboldt County foresee continued slow population growth. According to the California Department of Finance, Humboldt County is projected to grow at an annual average rate of less than 0.9 percent for the period 1990 through 2040 in contrast to the overall average annual state growth rate of over 1.5 percent for the same period.

The city's share of county population ranged between a low of about 21.5 percent and a high of 23.5 percent in the period 1975 to 1993. Overall, the trend is downward, reflecting the city's limited supply of residential land. Table 5-1 shows population in Eureka and Humboldt County and the city's share of the total county population.

TABLE 5-1
HISTORICAL POPULATION GROWTH
Eureka and Humboldt County
1975 to 1993

Year	Eureka	Humboldt County	Eureka as Percent of County
1980	24,250	108,000	22.45
1981	24,150	108,900	22.18
1982	24,500	111,000	22.07
1983	24,300	110,400	22.01
1984	24,550	111,100	22.10
1985	24,700	112,400	21.98
1986	24,500	112,400	21.80
1987	24,500	112,900	21.70
1988	24,800	114,800	21.60
1989	25,250	117,500	21.49
1990	26,950	118,400	22.76
1991	27,350	121,100	22.58
1992	27,900	123,900	22.52
1993	28,250	126,500	22.33

Source: California Department of Finance; Angus McDonald & Associates

According to California Employment Development Department, the unemployment rate as well as the number of persons unemployed in Humboldt County declined markedly between 1976 and 1991, reflecting relatively strong job growth over that period. Since 1991, however, the unemployment rate has increased, reflecting the problems facing timber and related industries in the county as well as the widespread recession in California. While the unemployment rate in Humboldt County historically has been higher than the state average, it has been significantly lower than other counties in Northern California. One major reason for this has been the role the county, and especially Eureka, has played as the mercantile center of Northern California.

Table 5-2 shows the total labor force, unemployment, and unemployment rate in Humboldt County for selected years between 1976 and 1991. Table 5-3 compares the unemployment rate in the county with the statewide rate and with other northern California counties.

TABLE 5-2
LABOR FORCE AND UNEMPLOYMENT
Humboldt County
1976 to 1991

Year	Labor Force	Number Unemployed	Percent Unemployed
1976	48,200	6,600	13.69
1980	49,600	6,100	12.30
1985	47,900	5,100	10.65
1990	51,200	3,900	7.62
1991	51,900	4,600	8.86

Source: California Employment Development Department; Phyllis A. Lammers

TABLE 5-3
COMPARISON OF PERCENT UNEMPLOYED
Humboldt, and Other Northern Counties, California
1988 to 1990

County	1988 (%)	1989 (%)	1990 (%)
Humboldt	7.7	7.8	7.6
Del Norte	12.5	12.9	12.6
Trinity	11.2	12.4	12.2
Siskiyou	10.7	10.6	11.6
Modoc	8.7	9.1	9.6
Shasta	9.1	9.0	8.6
Lassen	8.4	8.4	8.9
Tehama	8.8	9.5	10.7
Plumas	11.1	10.4	10.4
California	5.3	5.1	5.6

Source: California Statistical Abstract

ECONOMIC STRUCTURE OF HUMBOLDT COUNTY

Analyses of local economies typically start with a description of the local economic "base." The economic base, as the name implies, is the foundation of the local economy--those basic economic activities that provide the "engine of growth." Basic economic activities are those that generate income and employment from sources outside the local community.

The Eureka/Humboldt County economy has historically depended heavily on the lumber industry, which includes timber production and the manufacturing of timber-related products. Both types of manufacturing are in long-term decline due to diminishing timber resources, increased mechanization, and increased regulation of timber harvesting. Since the 1970s, there has been a major shift in the structure of the county's economy away from manufacturing toward services, retail trade, and government. Humboldt State University, as well as some state and federal government employment, are also basic industries. Spending by visitors and the movement of retired persons into the county have provided some basic economic activity more recently. Basic industries generate demand for other industries to provide supplies. The railroad and port, for example, historically served the timber industry. Local-serving industries are those that serve the consumption needs of the local area.

WAGE AND SALARY EMPLOYMENT

Table 5-4 shows employment by industry for Humboldt County for selected years from 1975 through 1991. The table shows the dramatic changes that have taken place in the local economic base over that period. Overall the economy added 9,300 jobs over the 16-year period, which translates into an average annual growth rate of 1.43 percent. Over this same time period, total county population grew at an average annual rate of less than one percent. Growth by industry, however, was uneven, with manufacturing losing 2,300 jobs. Within manufacturing, the job losses were concentrated in Lumber and Paper Products industries. With the closing of the Simpson pulp mill in early 1993, this sector will show a further steep decline of more than 250 jobs when the 1993 data are released. Food Processing, which includes fish processing, remained flat at 600 jobs between 1975 and 1991. Note, however, that it had increased to 900 jobs in 1980 and then declined over the following five-year period. Other Manufacturing gained 500 jobs over this period. Job growth was largely concentrated in the Retail Trade and Services sectors. While Government (which includes Humboldt State University) added 1,400 jobs over the 16-year period, its share of total employment actually declined.

TABLE 5-4
WAGE AND SALARY EMPLOYMENT BY INDUSTRY
Humboldt County
1975 to 1991
(Annual Averages)

	1975	1980	1985	1990	1991	Change 1975-91	% Change 1975-91
Agriculture	600	800	800	900	900	300	50.0
Ag. Production	400	500	500	600	500	100	25.0
Forestry & Fisheries	200	300	300	300	300	100	50.0
Construction & Mining	1,400	1,200	1,300	2,100	2,000	600	42.9
Manufacturing	8,300	7,000	6,000	6,400	6,000	-2,300	-27.7
Food Processing	600	900	500	600	600	0	0.0
Lumber & Paper Products	7,000	5,400	4,700	4,600	4,200	-2,800	-40.0
Other Manufacturing	700	700	900	1300	1200	500	71.4
Trans & Public Utilities	2,300	2,300	2,300	2,400	2,300	0	0.0
Wholesale Trade	1,200	1,500	1,500	1,600	1,500	300	25.0
Retail Trade	5,800	7,000	8,000	9,500	9,600	3,800	65.5
Finance, Ins., & Real Estate	1,100	1,400	1,400	1,600	1,600	500	45.5
Services	6,000	8,600	9,000	10,500	10,700	4,700	78.3
Hotels & Motels	600	700	700	900	900	300	50.0
Medical Services	2,200	2,800	3,100	3,900	4,100	1,900	86.4
Other Services	3,200	5,100	5,200	5,700	5,700	2,500	78.1
Government	9800	10,600	9,800	10,900	11,200	1,400	14.3
Federal	700	1,000	800	1,000	900	200	28.6
State	1,000	1,200	1,200	1,100	1,100	100	10.0
Local (incl. education)	8,100	8,400	7,800	8,900	9,200	1,100	13.6
Total, All Industries*	36,400	40,200	40,100	45,900	45,700	9,300	25.6

Note: *Detail may not add to totals due to independent rounding.

Source: California Employment Development Department

The shift in employment from manufacturing to government, service, and retail employment is significant for Humboldt County, because manufacturing induces more growth in other sectors of the local economy (i.e., has a higher multiplier effect) than these other types of economic activity. Manufacturing induces growth in the local economy because it produces goods that are exported from the county. Earnings from the sale of manufacturing goods outside the local economy are infused back into the local economy where they can support service activities, which are typically more local in nature. As manufacturing declines, the infusion of money from outside the local economy also declines. The result is a weakening of the economic base upon which government, service, and retail activity rest; this ultimately leads to declining earnings in these economic sectors if new ways are not devised to earn "export" dollars. Other types of economic activity can replace manufacturing, but they typically will have a smaller multiplier effect than manufacturing, which means that the economy will have to work harder to sustain current levels of service activity.

The changing structure of the Humboldt County economy can be seen even more clearly in statistics depicting the percentage distribution of wage and salary employment. In 1975, manufacturing accounted for 22.7 percent of employment; by 1991, its share had declined to 13.1 percent. Conversely, retail's share climbed from 15.9 percent to 21.0 percent over the same period, and services' share grew from 16.4 percent to 23.4 percent. Table 5-5 shows the distribution of wage and salary employment by industry.

TABLE 5-5
DISTRIBUTION OF WAGE AND SALARY EMPLOYMENT BY INDUSTRY
Humboldt County
1975 to 1991
(Annual Averages)

	1975 (%)	1980 (%)	1985 (%)	1990 (%)	1991 (%)
Agriculture	1.64	1.98	2.00	1.96	1.97
Ag. Production	1.10	1.24	1.25	1.31	1.09
Forestry & Fisheries	0.55	0.74	0.75	0.65	0.66
Construction & Mining	3.84	2.97	3.24	4.58	4.37
Manufacturing	22.74	17.33	14.96	13.94	13.10
Food Processing	1.64	2.23	1.25	1.31	1.31
Lumber & Paper Products	19.18	13.37	11.72	10.02	9.17
Other Manufacturing	1.92	1.73	2.24	2.83	2.62
Trans & Public Utilities	6.30	5.69	5.74	5.23	5.02
Wholesale Trade	3.29	3.71	3.74	3.49	3.28
Retail Trade	15.89	17.33	19.95	20.70	20.96
Finance, Ins., & Real Estate	3.01	3.47	3.49	3.49	3.49
Services	16.44	21.29	22.44	22.88	23.36
Hotels & Motels	1.64	1.73	1.75	1.96	1.97
Medical Services	6.03	6.93	7.73	8.50	8.95
Other Services	8.77	12.62	12.97	12.42	12.45
Government	26.85	26.24	24.44	23.75	24.45
Federal	1.92	2.48	2.00	2.18	1.97
State	2.74	2.97	2.99	2.40	2.40
Local (incl. education)	22.19	20.79	19.45	19.39	20.09
Total, All Industries	100.00	100.00	100.00	100.00	100.00

Source: California Employment Development Department; Angus McDonald & Associates

One aspect of Humboldt County's changing economic structure is that lower wage jobs have been growing while higher wage jobs have been declining. Table 5-6 compares average annual earnings for major industry groups in Humboldt County. The data show that average annual earnings in retail and services are substantially lower than in manufacturing.

TABLE 5-6 AVERAGE ANNUAL EARNINGS BY MAJOR INDUSTRY GROUP Humboldt County 1990			
	Total Wages & Salaries (in \$000)	Average Total Employment	Annual Earnings
Agriculture, including forestry & fisheries	17,465	900	19,400
Construction	52,222	2,100	24,900
Manufacturing	173,817	6,400	27,200
Transportation & Public Utilities	67,363	2,400	28,100
Retail & Wholesale	162,558	11,100	14,600
Finance, Insurance & Real Estate	28,967	1,600	18,100
Services	157,849	10,500	15,000
Government	173,817	10,900	15,900
Total	834,058	45,900	18,200
Source: California Employment Development Department; Phyllis A. Lammers			

According to the California Employment Development Department (EDD), the trends in the Eureka/Humboldt economy during the last decade are expected to continue through 1996. Overall, EDD expects employment to increase in Humboldt County by 1,900 persons between 1989 and 1996, an increase of 8.2 percent. EDD expects manufacturing employment, however, to drop by 900 jobs, a 13.4 percent reduction from 1989 (losses in manufacturing employment are expected to be entirely in the manufacturing of lumber and paper products).

EDD projects government, service, and retail employment to increase steadily through 1996. Government will remain the largest industry in Humboldt County and is projected to grow by 1,200 jobs, an increase of 11.4 percent. Service employment is projected to grow the fastest, increasing by 1,500 jobs, an increase of 15.6 percent. Retail employment is expected to increase by 1,300 jobs, an increase of 13.5 percent. Table 5-7 shows the employment profile in 1989 and EDD's employment projections for 1996.

TABLE 5-7
WAGE AND SALARY EMPLOYMENT PROJECTIONS
Humboldt County
1989 to 1996

Type of Employment	1989	Projected 1996	Percent Change
Mining & construction	2,100	2,300	9.5
Manufacturing	6,700	5,800	-13.4
Food & kindred products	700	700	0.0
Lumber & paper products	4,900	3,600	-26.5
Other manufacturing	1,200	1,500	25.0
Transportation & public utilities	2,500	2,500	0.0
Wholesale trade	1,700	1,800	5.9
Retail trade	9,600	10,900	13.5
Restaurants & bars	3,000	3,400	13.3
Other retail	6,600	7,500	13.6
Finance, insurance	1,500	1,500	0.0
Services	9,600	11,100	15.6
Hotels & motels	800	800	0.0
Health services	3,500	4,100	17.1
Other Services	5,400	6,200	14.8
Government	10,500	11,700	11.4
Federal government	1,000	1,000	0.0
State & local government	9,500	10,700	12.6
Total	80,800	87,100	7.8

Source: California Employment Development Department

MEDIAN HOUSEHOLD AND FAMILY INCOME

Eureka and Humboldt County have a relatively high number of lower-income households. As a result, median income was substantially lower in Eureka and Humboldt County than for California as a whole in 1990. According to the U.S. Census Bureau, Eureka's median household income was \$21,812 and Humboldt County's median household income was \$23,586 in 1990. By comparison, California's median household income was \$35,798 in 1990, almost \$15,000 higher than Eureka's.

In addition to having a comparatively low median income in 1990, Eureka's and Humboldt County's median household and family income decreased in real dollar terms between 1970 and 1990. According to the U.S. Census Bureau, median household and family income for Eureka and Humboldt County, unadjusted for inflation, have increased substantially over the last two decades. If these income figures are adjusted for inflation, however, family income is actually less in 1990 than in 1980 or 1970. For example, adjusted median family income in Eureka was \$8,140 (1970 dollars) in 1990, a decrease of \$968 from the median family income of \$9,108 in 1970. Adjusted median family income in Humboldt County was \$8,658 (1970 dollars) in 1990, a decrease of \$496 from the median family income of \$9,154 in 1970. Table 5-8 shows median income for Eureka, Humboldt County, and California for 1970, 1980, and 1990.

TABLE 5-8

MEDIAN INCOME
Eureka, Humboldt County, California
1970, 1980, and 1990

Year	Income Type	Eureka	Humboldt County	California
Unadjusted for Inflation				
1990	Household Income	\$21,812	\$23,586	\$35,798
	Family Income	28,542	30,357	40,559
1980	Household Income	13,679	14,774	18,248
	Family Income	17,661	18,479	21,541
1970	Household Income	n/a	n/a	n/a
	Family Income	9,108	9,154	10,732
Adjusted for Inflation (1970 dollars)*				
1990	Household Income	6,221	6,727	10,210
	Family Income	8,140	8,658	11,567
1980	Household Income	6,406	6,919	8,546
	Family Income	8,271	8,654	10,088
1970	Household Income	n/a	n/a	n/a
	Family Income	\$9,108	\$9,154	\$10,732
*Annual average Consumer Price Index (1967 base) for 1970 = 115.8, for 1980 = 247.3, for 1990 = 406.0 Sources: U.S. Census; U.S. Department of Labor, Bureau of Labor Statistics; J. Laurence Mintier & Associates				

POVERTY STATUS

Another measure of Eureka's declining standard of living is the rate of poverty in the community. According to the U.S. Census Bureau, 7.9 percent of all persons for whom poverty status was determined were living below 75 percent of the poverty level in Eureka in 1980. By 1990, this percentage increased to 11.1 percent.

INCOME DISTRIBUTION

The percentage of very low- and low-income households in Eureka increased significantly between 1983 and 1990. Almost 35 percent of households in Eureka in 1990 were very low-income households and 20 percent were low-income households, according to the 1992 income limits established by the U.S. Department Housing and Urban Development (HUD). In 1983 (the last year for which the analysis was made), only 27 percent of households in Eureka were very low-income households, and only 15 percent of households were low-income households. Table 5-9 shows income distribution for Eureka in 1992.

TABLE 5-9
INCOME DISTRIBUTION
City of Eureka
1992

HUD Income Category	Range	HUD Income ¹ Limit for 1992	Number of Households	Percent ²
Very low	up to 50	\$14,800	3,936	34.7
Low	50 to 80	23,700	2,189	19.3
Median	80 to 100	29,600	1,009	8.9
Moderate	100 to 120	35,550	930	8.2
Above Moderate	120 and above	\$35,550+	3,278	28.9
Total			11,342	100.0

Area Median Income (assigned by HUD) = \$32,200

Notes: ¹Income limit for a three-person household

²This distribution is based on 1990 income distribution as reported by the U.S. Census Bureau.

Source: California Department of Housing and Community Development; U.S. Census Bureau; Mintier & Associates

TRENDS IN KEY ECONOMIC SECTORS

The following sections provide a more focused discussion of trends and conditions in key sectors of Humboldt County's and Eureka's economies.

TIMBER AND PULP

Once the dominant basic industry in the county, timber and related products have declined substantially in the past decade due both to changes in the marketplace and to changes in the local resource base. A 1989 study by Mountain West Research for the Humboldt County Economic Development Forum identified several reasons for the decline of employment in timber and related products industries. First, increased competition from the southeastern United States has taken significant market share. Second, the expansion of public land ownership removed substantial old growth forest land from commercial use. Third, environmental concerns have further restricted logging. Fourth, automation in the industry increased productivity but reduced the number of jobs. Fifth, the industry now ships logs to Japan and produces less processed lumber. The recent (1993) closing of the Simpson pulp mill on the Samoa Peninsula represents a further decline of the industry. The Louisiana-Pacific (LP) pulp mill also shut down for a few months toward the end of 1993. The LP plant, however, reopened in December 1993 and is now producing chlorine-free pulp--a product that is being produced in only a few plants in the country.

COMMERCIAL FISHING AND FISH PROCESSING

According to the California Department of Fish and Game, from 1988 through 1990, the Eureka port area (including Del Norte County, Humboldt County, and Mendocino County) was second only to Los Angeles among California port areas in landings of commercial fish, in both poundage and dollar value. In 1991 and 1992, the Eureka port area surpassed Los Angeles in the dollar value of commercial fish landings but remained second in the poundage of commercial fish landings. Within the Eureka port area, Humboldt County landed almost 30 percent of the commercial fish catch in 1991 and 1992.

The fishing industry is comprised of fishing boat operators, fish buyers and processors, berthing facility operators and various suppliers (e.g., boat and gear maintenance). There are four commercial fish buying stations along the Eureka waterfront.

Pacific Choice is the primary occupant of a 50,000 square foot plant at the foot of Commercial Street, where it processes fish, shrimp, and crab. The plant was built with funds from the Federal Economic Development Administration (EDA) in 1973 and was recently renovated with Community Development Block Grant Program funds. The building is owned by the City of Eureka. Approximately 60 percent of its product is trucked in from buying stations in other North Coast ports. Pacific Choice expects some growth in shrimp processing and is considering building a cold storage plant for frozen products. In the short term, the EDA plant is adequate to serve the needs of Pacific Choice. Eureka Cold Storage does some processing on-site at its A Street plant, but trucks the majority of fish landed there to its main plant in Fields Landing. In 1994, new federal fish processing standards will be imposed, and it is anticipated that the older plants like Eureka Cold Storage and Coast Oyster will need to make significant investments in renovation to meet the new standards. Development policies in the Waterfront area will be key to convincing the fishing industry that investment in the improvement of its facilities will earn a better return in Eureka than at another location.

Ice sales to fishing boats are an important support function of the fishing industry. Eureka Cold Storage is the only ice vendor for fishing boats in Eureka.

AQUACULTURE

Coast Seafood Company lands oysters at the foot of A Street from its Arcata Bay farms. The oysters are harvested by a small hydraulic dredging machine and transported by barge to the factory. The farming operation also involves returning shells and juvenile oyster "seed" to the beds from the factory and cultivating the beds by hand, using small barges and workboats. Waterfront facilities include a 60-foot by 100-foot dock for the dredge, a wharf for barges and workboats, and a system of conveyors connecting the wharf and docks with the main plant building where Coast Oyster shucks and packs oysters. With most of its markets out of state, Coast Oyster Company is California's largest oyster producer. While the facility is large enough to accommodate a significant increase in output, no one knows what level of oyster production can be sustained in the Bay.

BOAT MAINTENANCE AND REPAIR

There are numerous repair shops in Eureka specializing in boat-related maintenance and repair, and there are also custom boat builders in Eureka. Eureka's lumber mills have historically supported many highly-skilled machinists, boilermakers, electricians, sheet metal workers who can support the maritime industries as well, making the area attractive for small custom builders. Since the area has lost its major mills, this advantage is likely to erode somewhat over time as former employees retire, leave their crafts, or move out of the area.

Many commercial fishermen and other boat operators prefer to do their own routine boat, engine, and gear maintenance. Woodley Island Marina generally does not permit its crane and docks to be used for maintenance work. The fishermen's maintenance and storage facility recommended in the Humboldt Bay Development Plan could partially address this need. Also, fishing vessels require annual haulouts for hull scraping and maintenance. The nearest major boatyard with a heavy lift is about nine miles south of Eureka at Humboldt Marine Services in Fields Landing. The Humboldt Bay Harbor Recreation and Conservation District also operates a boat repair facility in Fields Landing. There is also a small yard with a marine railway on the Samoa Peninsula. Many Eureka-based vessels haul out at other ports.

TOURISM

Tourism is a significant source of economic development in Eureka. According to the 1991 Humboldt Bay Development Plan (prepared by Martin O'Connell Associates), the most important and cost-effective economic development strategy for Eureka is the promotion of tourism. The Mountain West report, while less enthusiastic about tourism than the Humboldt Bay Development Plan, refers to tourism as Humboldt County's most competitive target industry. Important elements of Eureka's existing tourist draw include Old

Town; exceptional visitor accommodations including the Eureka Inn and numerous bed and breakfasts; and a large and well-maintained stock of Victorian houses. The Humboldt Bay Development Plan recommends the enhancement of the city's "working waterfront" as a key element of the city's efforts to increase tourism. The plan also noted the potential for cruise ship landings at the port. In response to recent City efforts, a major cruise ship operator has committed to making two stops in 1994.

One good indicator of the amount of tourism and trends in this sector of the economy is hotel and motel room receipts. Table 5-10 presents an estimate of gross room receipts for Arcata, Eureka, Fortuna, and the unincorporated area of the county. The data are presented in real dollars (i.e. dollars of constant 1982-84 purchasing power). In other words, the effect of inflation (i.e., increases in the general price level) has been removed. The estimates of gross room receipts are based upon each jurisdiction's receipts from its Transient Occupancy Tax (sometimes called the "bed tax"). These three cities and the unincorporated area have most of the hotel/motel activity in the county.

According to the data, gross room receipts grew substantially through the 1980s. The average annual growth rate countywide in real gross room receipts was a very substantial 3.77 percent. While the city of Arcata showed the most rapid rate of growth over this period, Eureka grew at an annual rate of well over 2 percent. However, the data also show that in real terms gross room receipts peaked in 1990 and have fallen slightly since. The recent decline reflects the continuing recession in California.

TABLE 5-10 ESTIMATED GROSS ROOM RECEIPTS* Selected Cities and Unincorporated Humboldt County (In constant 1982-84 dollars) 1980 to 1992					
Year	Eureka	Arcata	Fortuna	Unincorporated Area	Total
1980	\$7,327,000	\$743,700	\$262,900	\$2,766,800	\$11,100,400
1981	7,781,500	996,700	260,400	2,959,100	11,997,700
1982	7,483,500	1,339,700	236,400	2,833,300	11,892,900
1983	8,588,700	1,431,200	236,300	3,009,500	13,265,700
1984	8,388,900	1,441,100	239,600	3,201,500	13,271,100
1985	8,446,200	1,460,200	256,600	3,376,400	13,539,400
1986	8,527,200	1,568,200	240,800	3,414,300	13,750,500
1987	8,738,600	1,793,400	318,700	3,519,100	14,369,800
1988	9,430,800	1,995,800	314,900	3,760,300	15,501,800
1989	9,900,400	2,539,000	308,900	3,673,200	16,421,500
1990	10,010,100	2,853,100	305,400	4,063,800	17,232,400
1991	9,444,100	\$2,918,800	286,700	4,029,400	\$16,679,000
1992	\$9,348,000	n/a	\$334,100	\$3,934,600	n/a
Note: *Based on Transient Occupancy Tax Receipts from the three cities and county. Source: Phyllis A. Lammers; Angus McDonald & Associates					

Another indicator of trends in tourism is per capita restaurant sales (in real dollars). If per capita restaurant sales increase, then either local residents and workers are eating out more or more tourists and visitors are eating in local restaurants (or both). Conversely, a fall in per capita restaurant sales indicates that local consumption or visitor/tourist consumption has decreased.

According to the State Board of Equalization, Humboldt County, Eureka, Arcata, and Fortuna experienced an upward trend in real per capita restaurant sales through most of the 1980's with a fall off in the late 1980's and early 1990's. Per capita restaurant sales data are presented in Table 5-11.

TABLE 5-11 RESTAURANT SALES PER CAPITA Humboldt County 1980 to 1991			
Year	Restaurant Sales (\$000 current)	Restaurant Sales (\$000 real)*	Restaurant Sales Per Capita (\$ real)
1980	\$43,823	\$54,506	\$505
1981	48,741	53,680	493
1982	50,330	51,568	465
1983	54,332	55,215	500
1984	59,019	56,749	511
1985	61,313	56,562	503
1986	64,280	57,599	512
1987	68,567	59,417	526
1988	73,433	60,940	531
1989	77,591	61,385	522
1990	81,919	62,013	524
1991	\$84,977	\$61,622	\$509
Note: *Consumer Price Index for the San Francisco/Oakland area			
Source: State Board of Equalization; Angus McDonald & Associates			

RETAIL TRADE

As was noted earlier, retail trade provided a substantial part of the job growth in the county over the past decade and a half, adding about 3,800 jobs between 1975 and 1991. This represents an average annual growth rate of 3.2 percent over this period compared with the overall employment growth rate of slightly over 1.4 percent per year. Earlier discussion noted that for this same period the county's population grew at an average annual rate of about 1 percent.

According to data from the State Board of Equalization, only a small part of the increase in retail employment over the period 1980 through 1991 can be explained by growth in the local market. Based on the analysis in the preceding section, increased tourist spending also appears to account for only a small part of the increase. The rest of the increase in retail employment then would appear to relate to one or more of the following: 1) a reduction in consumer expenditure leakage from within the county, 2) increased capture of consumer expenditures from outside the county, or 3) a reduction in average hours worked or a relative reduction in hourly earnings or both.

Key questions are what were the causes of that growth, can it be expected to continue and what are the implications for the City of Eureka? Table 5-12 presents some key countywide summary retail data for the period 1980 through 1991.

TABLE 5-12

RETAIL SALES AND EMPLOYMENT
Humboldt County
1980 to 1991

Year	Taxable Retail Sales (\$000 current)	Taxable Retail Sales (\$000 real)	Retail Sales Per Capita (\$ real)	Average Annual Retail Employment	Retail Sales Per Employee (\$ real)	Retail Sales per Thousand Population
1980	\$400,542	\$498,187	\$4,613	7,000	\$71,170	64.8
1981	424,276	467,264	4,291	7,100	65,812	65.1
1982	415,839	426,065	3,838	7,200	59,176	64.8
1983	464,502	472,055	4,276	7,400	63,791	67.0
1984	502,859	483,518	4,352	7,700	62,795	69.3
1985	519,574	479,312	4,264	8,000	59,914	71.1
1986	520,184	466,115	4,147	8,300	56,158	73.8
1987	563,053	487,914	4,322	8,700	56,082	77.0
1988	601,348	499,044	4,347	9,300	53,661	81.0
1989	629,978	498,400	4,242	9,600	51,917	81.7
1990	659,649	499,356	4,218	9,500	52,564	80.2
1991	\$670,791	\$486,433	\$4,017	9,600	\$50,670	79.2

Source: State Board of Equalization

The first column shows year-by-year total taxable transactions (i.e., retail sales subject to the sales tax) in the county (all but a small fraction of retail sales--such as most food for home consumption and prescription medications--are taxable). These figures are expressed in "nominal" or "current" dollars--that is, they are not adjusted for inflation. The second column shows retail sales expressed in constant dollars--that is, the effects of inflation have been removed by adjusting the current dollar data by the San Francisco/Oakland Consumer Price Index. The data show that most of the growth in retail sales over this period were attributable to inflation. In real terms, retail sales fell from 1980 through 1982 and then showed a slight upward trend through most of the rest of the 1980's. The third column in Table 5-12 shows real taxable retail sales per capita in the county. These data show that after declining from 1980 through 1982 real per capita sales have moved within a relatively narrow range showing a slightly downward trend. The next column in the table shows average annual retail employment. Clearly, retail employment has grown far faster than sales. The last two columns show real retail sales per employee and retail employment per thousand population. There is a strong downward trend in average real sales per employee over the period. Also striking is the increase in retail employees per thousand population over the period.

To better understand the current and future market for retail activities within the county, Angus McDonald & Associates conducted a retail "capture/leakage" analysis. A capture/leakage analysis seeks to determine the extent to which retail purchases by local residents are made elsewhere and the extent to which local purchases are made by consumers from outside the area. The basic idea behind the analysis is to compare per capita retail sales by type of business in the local area with the same data at the state level.

The first step in the capture/leakage analysis was to determine what percentage of countywide taxable sales are captured by Eureka. Retail sales by type of business for 1991 are shown in Table 5-13 for both Eureka and the county as a whole. The second column in that table shows the city as a percent of the county. As noted in Table 5-1, in 1991 the city accounted for about 22.6 percent of the county population. Note that with the sole exception of Packaged Liquor Stores, the city captured a market share far greater than its resident population share. For Apparel, the city's share is approximately 80 percent, while for General Merchandise, it approaches 90 percent of the county. Clearly, Eureka is drawing from a market area well beyond its corporate limits.

TABLE 5-13

TAXABLE SALES BY TYPE OF BUSINESS
California, Humboldt County, and Eureka
1991

Type of Business	California (\$000 1991)	Humboldt County (\$000 1991)	Eureka (\$000 1991)	Eureka as a Percentage of County
Apparel stores	\$10,433,214	\$24,480	\$19,470	79.53
General merchandise stores	\$25,894,180	\$84,519	\$74,808	88.51
Drug stores	\$5,016,942	\$35,695	\$22,045	61.76
Food stores	\$16,381,589	\$76,133	\$24,675	32.41
Packaged liquor stores	\$1,990,832	\$5,608	\$1,188	21.18
Eating and drinking places	\$23,555,239	\$84,977	\$41,552	48.90
Home furnish. and appliances	\$8,851,394	\$17,835	\$13,563	76.05
Bldg. matrl. and farm implmts.	\$14,066,834	\$81,747	\$43,932	53.74
Auto dealers and auto supplies	\$27,516,659	\$107,682	\$74,721	69.39
Service stations	\$15,143,093	\$70,829	\$38,333	54.12
Other retail stores	\$27,723,208	\$81,286	\$45,154	55.55
Retail stores total	\$176,573,184	\$670,791	\$399,441	59.55

Source: State Board of Equalization; Angus McDonald & Associates.

Having determined that Eureka serves a market far greater than itself, the next question is how big that market is. The second step in the capture/leakage analysis, therefore, is to compare per capita sales for the state, Humboldt County, and Eureka. This allows comparison of taxable sales in each of the areas.

Table 5-14 compares per capita sales for the state, the county, and the city for the same business groups. In light of the discussion above, it is not surprising that per capita sales in all categories except Packaged Liquor Stores are higher in the city than in the county. A comparison of the per capita sales figures between the state and Humboldt County shows that in seven categories the county per capita is less than the state per capita, while in four cases it is greater.

TABLE 5-14

TAXABLE SALES PER CAPITA BY GENERAL TYPE OF BUSINESS
California, Humboldt County, and Eureka
1991

Type of Business	California	Humboldt County	Eureka
Apparel stores	\$340	\$200	\$705
General merchandise stores	845	691	2,710
Drug stores	164	292	799
Food stores	534	622	894
Packaged liquor stores	65	46	43
Eating and drinking places	768	695	1,506
Home furnish. and appliances	289	146	491
Building materials and farm implements	459	668	1,592
Auto dealers and auto supplies	898	880	2,707
Service stations	494	579	1,389
Other retail stores	\$904	\$664	\$1,636

Source: Angus McDonald & Associates

While a useful point of departure, such a comparison does not account for differences in average consumption patterns of county residents compared with the state consumption patterns. Average household size and income are substantially lower in Humboldt County than statewide. According to the 1990 Census, the average household size in the county was 2.491 while the average household size statewide was 2.794. According to the 1990 Census, the median 1989 household income for 1990 county residents was \$23,586 compared to the statewide median of \$35,798. On average, therefore, it would be expected that Humboldt County households would spend less on taxable merchandise than households statewide.

In the final step of the capture/leakage analysis, differences in household income between the state, Humboldt County, and Eureka were analyzed. To account for differences in household income between the county and the state, an analysis was performed to determine the expected average household expenditure patterns in the county and statewide. This part of the analysis, which was based on a mathematical model derived from data from the U.S. Department of Labor's Consumer Expenditure Survey, determines what households would be expected to spend on a range of goods and services given their income and size. This demographic expenditure analysis yields a set of per capita ratios of expected local expenditures to state expenditures. For example, given the income and household size differences, average per capita county expenditures on apparel would be expected to be about 86 percent of average per capita expenditures statewide, while those on gasoline would be expected to be over 91 percent. These adjustments (which for convenience are called "income adjustments") were applied to all business type categories to determine expected versus actual per capita sales in the county.

The final results of the leakage analysis for 1991 are shown in Table 5-15.

TABLE 5-15 PER CAPITA RETAIL CAPTURE/LEAKAGE BY GENERAL TYPE OF BUSINESS Humboldt County 1991					
	Statewide Actual	Humboldt County Actual	Income Adjustment Factor	Humboldt County Expected	Adjusted Capture (Leakage)
Apparel stores	\$340	\$200	86.16	\$293	(\$93)
General merchandise stores	845	691	85.71	724	(33)
Drug stores	164	292	85.71	140	151
Food stores	534	622	95.91	513	110
Packaged liquor stores	65	46	87.22	57	(11)
Eating and drinking places	768	695	83.37	641	54
Home furnish. and appliances	289	146	81.79	236	(90)
Bldg. matrl. and farm implmts.	459	668	84.28	387	281
Auto dealers and auto supplies	898	880	81.89	735	145
Service stations	494	579	91.31	451	128
Other retail stores	904	664	87.66	793	(128)
Retail stores total	\$5,760	\$5,483	86.27	\$4,969	\$513
Source: Angus McDonald & Associates					

Overall, the county experiences net capture of sales from outside. It does, however, show significant net leakages in three categories: Apparel, Furniture and Appliances, and Other. A breakdown of the Other category is shown in Table 5-16. Note that the analysis shown in Table 5-16 does not include the income adjustments discussed earlier. The most striking leakage identified in the table is in the Office, Store and School Supplies business category.

TABLE 5-16

**PER CAPITA RETAIL CAPTURE/LEAKAGE "OTHER RETAIL" GROUP
California and Humboldt County
1991**

Type of Business	California	Humboldt County	Ratio of County to State
Jewelry	\$44	\$43	0.97
Office, store, and school supplies	176	68	0.38
Other specialties	254	140	0.55
Second-hand merchandise	11	13	1.23
Farm and garden supply stores	49	66	1.34
Fuel and ice dealers	11	23	2.01
Mobile homes, trailers and campers	22	21	0.95
Boat, motorcycle, and plane dealers	39	29	0.74
Other Retail	\$904	\$664	0.73
Note: These figures have not been adjusted for differences between state and county average household incomes			
Source: Angus McDonald & Associates			

The capture/leakage analysis shows that a large part of the job growth in retail has been unrelated to sales growth. Total retail sales in real dollars have remained flat over the past decade, per capita retail sales have declined, and average retail sales per employee have declined. These trends reflect the changing structure of retailing within the county. Therefore, it is unlikely that job growth in this sector can be sustained.

The capture/leakage analysis also demonstrates that there are a few opportunities remaining to increase retail sales by reducing leakages. The categories of Apparels; Home Furnishings; and Office, Store, and School supplies present some opportunities. The fact that the county already captures a large amount of retail sales from outside the local area, however, suggests that opportunities for further expansion are limited. In short, further retail development cannot be relied upon to fuel substantial new growth in the local economy.

OTHER MANUFACTURING

As Table 5-4 shows, there has been growth in some kinds of manufacturing jobs. Excluding the Lumber and Paper Products industries and Food Processing, the period 1975 through 1991 saw the addition of 500 jobs in manufacturing. The Mountain West study identified some potential for small manufacturing firms in the future. Case studies in that report as well as other examples in the county point to the potential for the creation and growth of small manufacturing.

For example, Arcata's Aldergrove industrial park currently contains fourteen businesses employing 150 to 200 workers. The City of Arcata estimates that the industrial park will fill its 35 acres by 1995. The firms within that park as well as those inquiring about potentially locating there are local businesses and entrepreneurs, not firms from outside the county. The City of Blue Lake Industrial Park has filled all but about 10 acres of its 40 acre total. The 14 current businesses there employ about 100 workers. The industrial park is focusing efforts on an incubator for wood products firms. Its experience has been similar to Arcata's in that most tenants have come from the immediate area, not from outside the county.

While there is a substantial amount of industrial land on the Samoa Peninsula, most of it is in very large parcels. Furthermore, the territory would have to be annexed to the City to realize tax benefits from development there. Eureka's Westside Industrial Area also contains significant amounts of industrial land, but development there is relatively expensive because of toxic soils problems and competition for space from

retail and office uses. There appears, therefore, to be a shortage of suitable sites for small locally-grown businesses in Eureka.

FISCAL CONSIDERATIONS

While the City has many funds, the most critical is the General Fund. The General Fund is the major fund used for ongoing operations. The City has relatively little leeway in affecting General Fund revenue in the short run.

GENERAL FUND REVENUES BY SOURCE

Sales taxes are by far the single most important revenue source for the General Fund, accounting for approximately 44 percent of revenues in fiscal year 1990/91. Property taxes accounted for slightly less than 10 percent. Among the other local revenue sources, the transient occupancy tax (sometimes referred to as the "bed tax") accounted for 8.5 percent. "Intergovernmental Revenues" are revenues from other governments, primarily the State. These accounted for about 9 percent of General Fund revenues. Motor Vehicle In-lieu taxes subvended from the state account for over 80 percent of this category.

ONGOING MUNICIPAL SERVICE COSTS (GENERAL FUND EXPENDITURES)

Slightly over one half of the General Fund goes to Public Safety (Police and Fire). Police services account for slightly over 26 percent while the Fire Department accounts for a little less than 25 percent. General Government (which includes the City Manager's office, the Council, City Attorney, Finance, Personnel, Clerk, and other general functions) is the other large category funded from the General Fund. It accounts for about 27.5 percent of General Fund Expenditures. Parks and Recreation, Maintenance, Public Works and Community Development account for the remainder.

FINDINGS

- The future rate of population growth in the area can be expected to be slow. A moderate level of growth from immigration of retirement population from elsewhere in California can be expected.
- The economic structure of the area has changed significantly over the last decade and a half. The importance of timber, pulp, lumber and wood products to the area's economy has declined substantially over this period.
- The city and county have experienced significant growth in tourism over the past decade. The recent slowdown in tourism appears to be cyclical, reflecting the weak state of the California economy.
- The area has many characteristics that create a potential for expansion of tourism. Eureka's waterfront and fishing industry are a part of those characteristics. Also of importance to tourism is the economic health and attractiveness of the Old Town and downtown areas. An economic development strategy that aims at tourism needs to take into account approaches to maintaining and enhancing these areas.
- Eureka captures a large share of the area's retail sales.
- While overall Humboldt County captures significant sales from outside, there are retail sales leakages in a few categories including Apparel, Furniture and Appliances and some specialty stores.
- There has been relatively little change over time in real per capita retail sales in the county.
- Substantial retail expansion in excess of the demands created by population growth will come in part at the expense of existing retail. While such displacement often reflects the ordinary workings of the market it can bring other consequences for the Old Town and downtown areas that may be of concern to the city.
- Small scale manufacturing appears to have potential for growth. There is demand from local businesses and entrepreneurs for small scale industrial facilities. While the short run job gains from such enterprises are often not dramatic, over the long run such firms add significantly to the local economy.

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CHAPTER 6

TRANSPORTATION



INTRODUCTION

This chapter discusses Eureka's transportation system and services, including streets and roads, parking, public transit, rail service, port activities, and air transportation. Eureka's location as a significant port as well as a tourist destination city means that a wide variety of transportation modes are important to different segments of the population and different segments of the economy. This chapter is intended to provide a general understanding of the importance of each mode and the role that they serve in the community. The information in this report comes primarily from City of Eureka Engineering Department, the Humboldt County Association of Governments (HCAOG), Caltrans, and recent transportation studies.

This chapter is divided into ten sections. The first section describes the existing street and roadway system. The second section discusses parking. The third section describes bicycle facilities. The fourth section describes transit services. The fifth section discusses rail facilities. The sixth section summarizes port and maritime activities in Humboldt Bay. The seventh section describes air transportation. The eighth section is a set of findings related to transportation in the General Plan Planning Area. Finally, the ninth and tenth sections list bibliographic references and persons consulted in the course of preparing this chapter.

STREET AND ROADWAY SYSTEM

EXISTING ROADWAY SYSTEM

Eureka's roadway system, basically unchanged for decades, is dominated by two major features--a grid street system and U.S. 101.

Eureka's existing roadway system can be characterized according to a functional street classification. Figure 6-1 and the following paragraphs describe Eureka's functional street classification system, as depicted in the City's 1990 Citywide Circulation Study prepared by TJKM Transportation Consultants.

U.S. 101 runs through the city along the northern and western perimeters. U.S. 101 freeway facility ends as it enters the city, and proceeds north-south along Broadway to the core area, turns east-west onto 4th and 5th Streets (one-way couplet), and joins back together east of V Street to an express facility again. Along Broadway, U.S. 101 is a 4-lane arterial with left-turn lanes and signals at major intersections. Fourth and 5th Streets are both three-lane one way facilities with signals at major intersections.

State Route 255 begins at Myrtle Avenue and travels north across Humboldt Bay to the Samoa Peninsula. Major one-way arterials include 6th Street, 7th Street, Harris Street, Henderson Street, H Street, and I Street. Major two-way arterials include Myrtle Avenue, West Avenue, Harrison Avenue, and E Street.

Minor Arterials include Fairfield Street, Union Street, California Street, B Street, J Street, S Street, 14th Street, Wabash Avenue, Del Norte Street, Buhne Street, McCullens Avenue, and Fairway Drive.

In addition to the major and minor arterials, there are many other collector streets that provide circulation in the city. City streets interface with the County streets to the south and east.

EUREKA FREEWAY

Local and state officials have long recognized the disruptive nature of U.S. 101 as it passes through Eureka. Eureka's 1965 General Plan recommended that U.S. 101 be developed as an elevated freeway passing through Downtown between 2nd and 3rd Streets. In 1967, the California Department of Transportation (Caltrans) conducted an evaluation of alternative freeway alignments. The evaluation examined four alternatives, denoted by color:

Blue Route - Starting at Elk River, paralleled Broadway to west, passing through Downtown between 2nd and 3rd Streets, reconnecting with U.S. 101 at V Street.

Red Route - Starting at Elk River, paralleled Broadway to west, passing Downtown between 9th and 10th Streets, reconnecting with U.S. 101 at V Street.

Orange Route - Starting at Elk River, passing through the Central Eureka between A and B Streets, turning east on an alignment between 14th and 15th Streets, reconnecting with U.S. 101 east of Eureka Slough.

Green Route - Starting at Elk River, skirting Eureka's southern and eastern city limits, reconnecting with U.S. 101 east of Eureka Slough.

The state formally adopted the Red Route and began acquiring right-of-way. The City also adopted the Red Route, which was a depressed freeway through Downtown, as part of its 1977 General Plan. Conditions affecting this freeway alignment have changed substantially since 1977. The construction of the Eureka Bay Shore Mall shopping center within the adopted alignment has raised significant questions about the feasibility of a freeway in this corridor. The presence of a large number of historical structures in other portions of the corridor has raised other questions. After adoption in 1977, Caltrans embarked on a land acquisition process that led to Caltrans ownership of 97 properties within the City.

In March 1993, the Eureka City Council approved a request to Caltrans for a feasibility study of the adopted U.S. 101 freeway alignment through Eureka. The study evaluated the feasibility of the Downtown alignment in light of new development and changed laws, rules and regulations in the years following adoption of the route. The aim was to determine if the alignment should be retained or abandoned. Based on the findings of the study, in 1995, Caltrans formally abandoned its plans for the Downtown freeway alignment.

EXISTING SERVICE LEVEL CONDITIONS

The 1990 Citywide Circulation Study discusses typical service level standards and reports that Level C or D are typically used in urban environments. The study also suggests that Level A or B should be maintained in residential areas to maintain the concept of a "livable street." The 1977 Transportation Element contains no service level policy, although Level C was used as a criteria in defining areas in need of study. Level of service standards as defined the Transportation Research Board's, *Highway Capacity Manual*, 1985, are defined as follows:

- **LEVEL OF SERVICE "A"** - Describes operations with very low delay, i.e., less than 5.0 sec per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
- **LEVEL OF SERVICE "B"** - Describes operations with delay in the range of 5.1 to 15.0 sec per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

PACIFIC OCEAN

ARCATA BAY

HWY 255

HWY 101

BROADWAY

14TH ST

WABASH ST

HENDERSON ST

BUHNE ST

HARRIS ST

WALNUT DR

HERRICK AVE

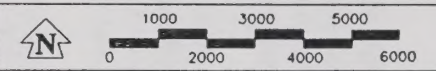
FAIRWAY DR

ELK RIVER RD

HUMBOLDT HILL RD

HUMBOLDT BAY

CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Larson & Associates and Miesler & Associates, June 1985

FIGURE 6-1 STREET SYSTEM CLASSIFICATION

- 2 - Lane Arterial
- 2 - Lane, One-way Arterial
- 3 - Lane One Way Arterial
- ▨ 4-Lane Divided Arterial
- ▧ Expressway
- ▩ Freeway

Source: TJKM, 1990

- **LEVEL OF SERVICE "C"** - Describes operations with delay in the range of 15.1 to 25.0 sec per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
- **LEVEL OF SERVICE "D"** - Describes operations with delay in the range of 25.1 to 40.0 sec per vehicle. At level "D", the influence of congestion becomes more noticeable. Long delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
- **LEVEL OF SERVICE "E"** - Describes operations with delay in the range of 40.1 to 60.0 sec per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
- **LEVEL OF SERVICE "F"** - Describes operations with delay in excess of 60.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

In order to determine volume to capacity ratios in Eureka, the 1990 Citywide Circulation Study compared existing segment volumes on the major arterial streets in the city to their theoretical capacity. Table 6-1 shows these theoretical peak hour capacities for various roadway segments. Using these capacities and existing traffic volumes, the study identified street and road segments that exceeded LOS C planning capacity. These included:

- Broadway from Downtown to Harris Street
- 4th and 5th Streets from M to V Street
- Myrtle Avenue from West Avenue to Harrison Avenue

TABLE 6-1		
MIDBLOCK ROADWAY SEGMENT PLANNING CAPACITIES		
Facility Type	Peak Hour Capacities	
	LOS C	LOS E
2-lane residential or rural roadway with rolling terrain	800	1,000
2-lane collector or rural roadway	1,000	1,250
2-lane arterial, light side friction	1,400	1,750
3-lane arterial, one-way flow, light side friction	1,700	2,100
4-lane undivided arterial	2,000	2,500
4-lane divided arterial	2,400	3,000
6-lane divided arterial	3,000	4,500
Source: TJKM Transportation Consultants		

In the course of preparing this chapter, Dowling Associates undertook field observations to confirm the findings of the 1990 Citywide Circulation Study regarding capacity problems in Eureka. These field observations confirm the conclusions of 1990 study. U.S. 101 in both the Broadway and 4th/5th couplet is the focus of the majority of traffic congestion in the City. Other portions of the city are relatively uncongested except for very short periods in selected locations, such as around schools at the beginning and end of the school day. In comparison with other California cities, the overall level of service provided by Eureka's street and highway system is very high.

TRUCK TRAFFIC

Traffic on Broadway includes a significant amount of truck traffic. According to the 1990 Citywide Circulation Study, Broadway between 8th Street and the Bayshore Mall operates at lower than Level of Service C during the PM peak hour. Because there are few alternatives for reducing existing and future traffic volumes on Broadway, the City expects Broadway to become more congested as traffic increases in the future. Some industries that depend heavily on trucking have expressed concerns about increasing traffic congestion along Broadway and the delays this is causing for trucks coming into and leaving the Westside Industrial Area.

Because the City has not adopted a truck route plan, trucks are legally free to traverse any street in the city. Periodically, complaints arise on streets such as Fairway Drive when heavy trucks use that street to bypass congestion on U.S. 101. Further, the use of streets such as 6th and 7th by trucks can lead to premature deterioration of the street since those streets are not structurally adequate to sustain heavy trucks.

PARKING

In 1986, the City of Eureka contracted with Winzler and Kelly, Consulting Engineers, for a Downtown Eureka parking structure feasibility study. The study included a parking deficiency analysis that continues to be relevant. It identified 3,515 parking spaces in a study area bounded by the Harbor, I Street, 7th Street, H Street, 8th Street, C Street, 7th Street and A Street. It further identified a "focus area" bounded by 1st, I, 7th and D Streets. Table 6-2 shows how the 3,515 spaces were categorized.

TABLE 6-2		
DOWNTOWN PARKING		
Category	Total Study Area	Focus Area
Public Parking		
On-Street Metered	646	551
On-Street Non-Metered	852	312
Off-Street Metered	326	187
Off-Street Non-Metered	220	115
Private for Private Use	1,370	821
Private for Public Use	101	101
Total	3,515	2,087
Source: Winzler and Kelly		

Occupancy studies were conducted during the second week of December 1986, to determine the degree to which the parking spaces were being used during the peak holiday shopping season. Similar studies were conducted in March 1987, to determine peak hour usage during the non-holiday season. Table 6-3 shows parking space occupancy.

TABLE 6-3		
PARKING SPACE OCCUPANCY		
Type of Parking	Study Area Occupancy (%)	Focus Area Occupancy (%)
December Holiday Peak Hour Usage (1-2PM)		
On-Street Metered	83	88
On-Street Non-Metered	74	86
Off-Street Metered	84	96
Off-Street Non-Metered	66	100
Private for Private Use	61	66
Private for Public Use	78	78
Total	71	80
March Peak Hour Usage (1-2PM)		
On-Street Metered	64	70
On-Street Non-Metered	67	82
Off-Street Metered	78	96
Off-Street Non-Metered	64	97
Private for Private Use	52	59
Private for Public Use	67	67
Total	62	71
Source: Winzler and Kelly		

The occupancy survey also estimated the number of blocks that were occupied at a rate of 85 percent or more in both periods. It concluded that 67 percent of the blocks in the focus area exceeded the 85 percent criterion during the holiday period, and that 40 percent of the blocks exceeded the criterion in the March period. On the basis of this analysis plus supplemental parker attitude surveys, the study concluded that parking structure(s) would be warranted in Downtown Eureka.

An independent analysis by Dowling Associates suggests a different conclusion given this same data. Both periods studied represent peak periods, and it is typically quite costly to design for the peak period. Further, the holiday peak period is of relatively short term duration (4 weeks out of 52), and competing facilities such as the Bay Shore Mall become saturated during these periods as well. On the basis of these statistics plus independent walking tours of the area, Dowling Associates concludes there is a fairly effective balance between parking demand and supply in Downtown Eureka at the present time. The issue to be considered during the General Plan update process is whether additional parking will be required to support a higher level of development in the Downtown area, and how the various demands for land use can be arrayed to avoid an excessive use of prime land for parking purposes.

In 1954, the City of Eureka created a parking assessment district in the Downtown area. The parking assessment district, which assessed commercial uses an annual parking fee in exchange for exemption from off-street parking requirements, operated for many years. Proceeds from the assessment were used to build public parking lots in the Downtown area. The parking assessment district is currently defunct, although commercial uses in the assessment district remain exempt from off-street parking requirements.

BICYCLE FACILITIES

The 1977 Transportation Element also contains a Bicycle System plan in the form of a map, cross-section standards, and companion policies. Two classes of bikeways are defined: 1) Class I facilities are exclusively bikeways or trails physically separated from autos; 2) Class II bikeways are shared with motor vehicles or pedestrians. Figure 6-2 illustrates the adopted bikeway plan.

TRANSIT SERVICES

PUBLIC BUS SYSTEMS

Transit services in Eureka are provided by two major bus systems--one local and one countywide. Eureka Transit Service (ETS), owned by the City of Eureka, jointly funded by the County and the City, and operated by the Humboldt Transit Authority, provides bus service to Eureka and surrounding area.

The City of Eureka currently (1993) operates two transit services within the city, and Humboldt County operates a county-wide system that includes stops within the city. Eureka Transit Service (ETS) currently (1993) operates four fixed routes serving Eureka, Myrtle-towne, Cutten and Pine Hill. These routes operate on hourly headways between 6 am and 7 pm. The routes provide a high level of coverage to the City, but because the routes are one-way loops, travel times for at least one direction of any passenger's trip can become quite long. The service has seen declining patronage since 1982, the most significant decrease coming in conjunction with a fare increase and service reduction in 1987.

In an effort to reverse the trend in declining ridership as well as the need to meet state-mandated farebox return requirements, the City commissioned a Route Restructuring and Marketing Plan in 1990. The route restructuring program recommended in that plan was implemented in July 1993. The revised structure would provide more direct service connections, improve scheduling, and implement a two-way rather than loop-route system. It is hoped that the revisions will result in increased ridership by tailoring the system to better meet the needs of area commuters.

Eureka is also served by the Redwood Transit System (RTS), a countywide bus system owned and operated by the Humboldt Transit Authority (HTA). HTA is a joint powers agreement of Humboldt County, Eureka, Arcata, Fortuna, Rio Dell, and Trinidad. The Redwood Transit System provides intra-county service along a 62 mile corridor between Scotia on the south and Trinidad to the north. Unlike ETS, the Redwood Transit System route does not operate on a repeating headway, but rather, the schedule is tied to a variety of activity centers along the route. Between 5:00 AM and 11:00 PM, 22 buses in each direction pass through or terminate in Eureka, for a service frequency of slightly less than one bus per hour (each way).

PRIVATE AND SPECIALIZED TRANSPORTATION SERVICES

Greyhound

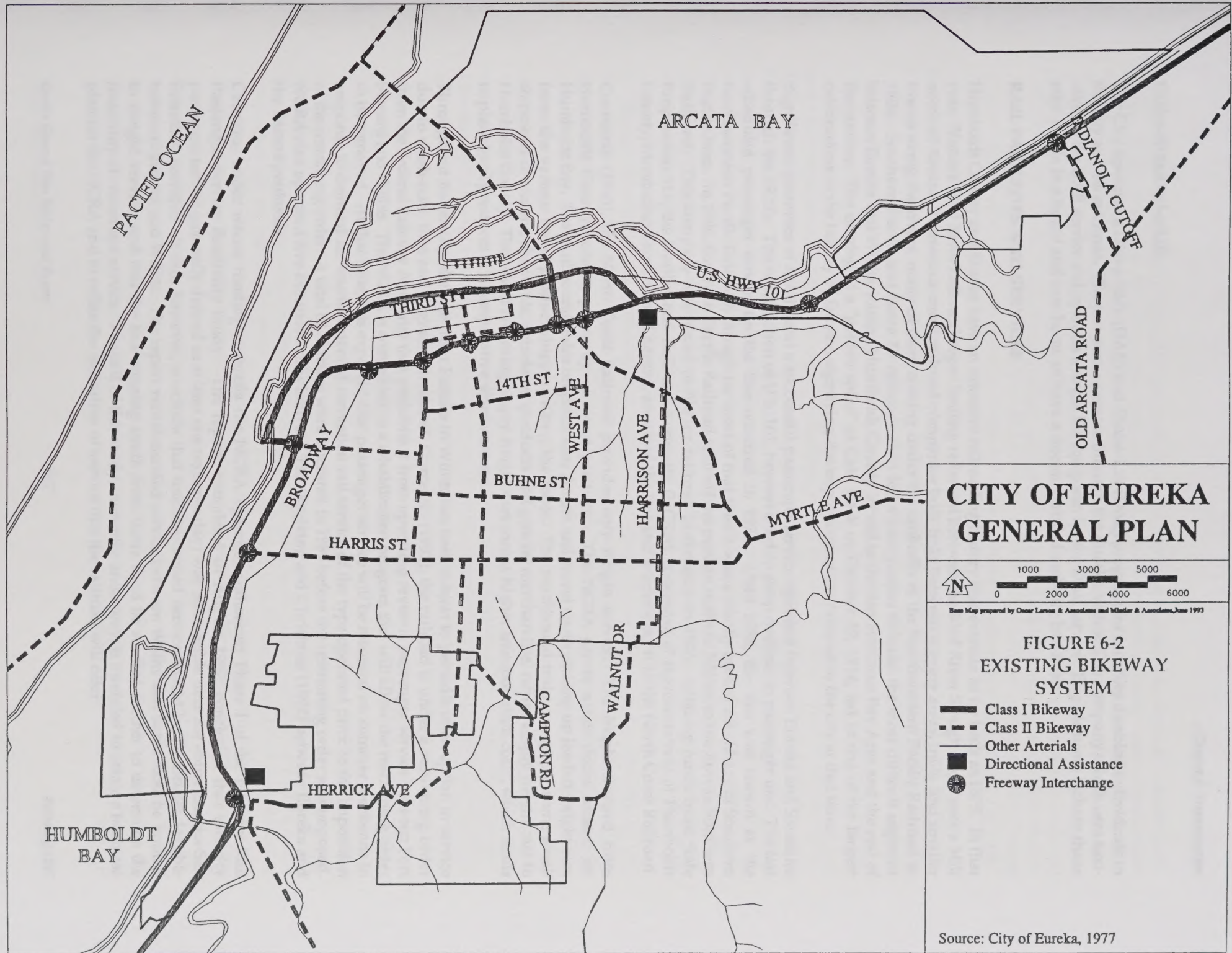
Greyhound currently (June 1993) provides two daily trips from Eureka to San Francisco, two to Portland, and one to Medford. Express passenger service is not being offered at this time. These service levels reflect decreases effective January 1991 as a result of decreasing ridership. Greyhound is currently (June 1993) considering reinstituting the former 3 daily trip schedule to San Francisco and Portland, which will effectively add a mid-day connection to Garberville.

Redwood Empire Lines

Redwood Empire Lines, a local transportation company, provides bus service with one round trip daily between Eureka and Redding, with the trips originating in Eureka. Regular stops are made in Willow Creek and Weaverville, with flag stops in between. The company also provides charter services.

Yellow Cab of Eureka

Yellow Cab of Eureka provides taxi services in Eureka and Arcata. It is also permitted to provide taxi services in areas outside the cities, and also participates in the Eureka Dial-A-Ride/Dial-A-Lift program (discussed below).



Dial-a-Ride/Dial-a-Lift

The City operates a Dial-a-Ride (DAR) and Dial-a-Lift (DAL) program for mobility disabled individuals in the city and its environs. The program operates through the Eureka Yellow Cab company which uses taxicabs for the DAR service and operates a single lift-equip van for the DAL service. Eligible users include those who reside in a board and care home or have a doctor-certified mobility handicap.

RAIL FACILITIES AND SERVICES

Humboldt County and Eureka have an extensive railroading history that extends as far back as 1875. In that year, "Vance's Mad River Railroad" began hauling redwood between the Mad River Slough and Vance's Mill north of Arcata. Numerous small railroad companies built links between logging areas, mills, and smaller towns along the rivers, many of them coming under the umbrella of the Northwestern Pacific Railroad in 1906. Southern Pacific and Santa Fe railroads then led a joint project to build the most difficult segment between Eureka and Willits, joining Humboldt County by rail to the San Francisco Bay Area and the rest of the nation. The driving of a "golden spike" at Cain Rock on October 23, 1914, led to one of the largest celebrations in the history of Eureka, signifying the importance of the railroad to the city at that time.

Significant quantities of freight and a successful passenger service operated between Eureka and Sausalito through the 1920's. The construction of U.S. 101, however, led to steep declines in passenger use. The last scheduled passenger service on the line occurred in 1971. Until 1984, the line was known as the Northwestern Pacific Railroad, though for most of that time it was a wholly owned subsidiary of Southern Pacific lines. In 1984, Southern Pacific Railroad split off the portion north of Willits to the Eureka Southern Railroad. This company was forced to file for railroad bankruptcy in 1986. Utilizing funds from State Proposition 116, the North Coast Railroad Authority (NCRA), consisting of representatives of Humboldt County, Mendocino County, and Caltrans, acquired the line and is operating it as the North Coast Railroad.

Currently (1993), the North Coast Railroad provides only freight service. The freight shipped from Humboldt County consists primarily of forest products. The NCRA serves major docks located on Humboldt Bay. The southbound trains originate near Arcata and travel south picking up loaded freight cars from the various forest product shippers along the route. The northbound train, except for some small shipments of cement, chemicals, petroleum products and general merchandise, return empty freight cars to Humboldt County. The cost of returning empty freight cars means higher transportation costs, which tends to place local products at a comparative disadvantage.

Throughout its history, the line from Eureka to Willits has been subject to periodic interruption in service due to wash-outs, fires and degraded trackbed. Currently (1993), the railroad is under a restraining order from the Federal Railway Authority that prohibits it from operating revenue passenger service between Fort Seward and Willits. The NCRA is committed to a rehabilitation program that will allow the restraining order to be removed. At that time, it is expected that passenger service will be resumed on summer weekends in response to demand for tourist-oriented recreation rail service of the type operated prior to the imposition of the restraining order. A total of 15 trains were operated in 1989 before the restraining order was imposed. NCRA also operated five excursion runs between Thanksgiving and Christmas (1992) between Eureka and the Samoa peninsula.

Caltrans, under whose funding umbrella the NCRA operates, authorized Phase I of the Intercity Rail Passenger Service Feasibility Study. The report, completed in August 1992, concluded that intercity passenger service (generally defined as at least one train per day) was not feasible over the entire Eureka-San Francisco corridor. It did, however, conclude that tourist-oriented service would be financially feasible between Eureka and Willits. The report recommended service between Willits and Santa Rosa be limited to freight service, and that the link running south from Santa Rosa be studied further to determine the feasibility of commuter service. Phase II of this study, currently underway, is intended to create a business plan for the NCRA and to refine the definition of service that the railroad will offer.

The NCRA will continue to serve a small but useful role in Eureka's transportation picture. If successful in marketing its tourist-oriented service, the railroad could serve as one of many attributes useful in building the city's tourist base. Due to the design and condition of the roadbed, which when restored to acceptable operating condition will still be limited to an average 25 mph speed, it is unlikely that the railroad will be a significant alternative to the automobile for either commuters or tourists in the foreseeable future. If tourist-oriented service is to increase, the NCRA will need to identify a location for a passenger terminal for the North Coast Railroad. NCRA currently does not have a terminal in Eureka.

PORT/MARITIME FACILITIES

Humboldt Bay has served as a major seaport on the Northern California Coast for the past 100 years. It is the only deep-draft harbor of commercial importance between Francisco approximately 225 nautical miles to the south, and Coos Bay, Oregon, approximately 156 nautical miles to the north.

HUMBOLDT BAY

The Bay, which covers approximately 25.5 square miles, actually consists of two shallow bays--South Bay below the entrance channel, and Arcata Bay, or North Bay, above the entrance channel, connected by a narrow channel approximately 5 miles long. Much of the Bay is quite shallow, with a large portion of the North and South Bays reverting to mudflats during low tide. The entrance is protected by two jetties. The Bay includes a system of five dredged channels maintained by the Army Corps of Engineers. These include: 1) the entrance channel between the two jetties is approximately 9,000 feet long with a width of 600 to 800 feet and has a depth of 40 feet; 2) the North Bay Channel which is 400 feet wide and 35 feet deep extends northerly from the turning basin a distance of 18,500 feet, whereupon the channel forks into the Eureka Channel and Samoa Channel, 3) the 400-foot wide Eureka Channel serves the Eureka waterfront and consists of two segments: a 3,000 foot length at a depth of 35 feet and 6,700 foot length at a depth of 12 feet; 4) the Samoa Channel serves the industry at Samoa and is 8,000 feet long, 400 feet wide and 35 feet deep, 5) the Fields Landing Channel (Hookton Channel) is 12,000 feet long, 300 feet wide, 30 feet deep and serves Fields Landing and King Salmon.

The Humboldt Bay Harbor Recreation and Conservation District was established by Humboldt County voters in 1973 to implement, supervise, and regulate the development of Humboldt Bay. The District is empowered by State statutes to develop Humboldt Bay to its ultimate potential as a harbor and port while conserving the natural resources of the area. Since its inception, the Harbor District has actively pursued a number of projects ranging from simply paving and improving the boat launching ramp and jetty at Shelter Cove to aspiring to have Humboldt Bay designated as an official foreign trade zone.

COMMERCIAL SHIPPING

Commodity Flows

Historically, forest products have been the most significant commodities in the Bay's waterborne commerce. These projects include logs, wood chips, pulp, moldings, lumber, particle board, plywood, veneers, and miscellaneous wood products. Timber products and wood pulp currently account for the bulk of all maritime shipping from Humboldt Bay. The only other significant commodities are chemicals (primarily sodium hydroxide and chlorine for use in pulp processing) and petroleum products (gasoline and fuel oil).

The export demand for logs and timber products has fluctuated over the years. The volume of exports has been dependent on Federal quotas, market fluctuations in the United States, and construction activities in the Pacific Rim nations. While the bay vessel traffic has shown a decline over the years, the increased capacity of modern ships has held freight volumes relatively constant. Exporting of processed wood pulp was begun on a large scale in 1965 with the opening of Louisiana-Pacific's pulp mill. This was followed by

a second mill as Simpson entered the local pulp market. Wood chips, previously burned as waste at the sawmills, began to be a significant export product in 1971. Since then, exports have increased from 14,245 tons to 171,840 tons, accounting for an additional 30 percent of the local export volume in 1991. Japan is the principal customer for the wood chips and utilizes them for paper production.

Refined petroleum products are imported to serve the local population and industry. Bulk transportation of petroleum by water is an efficient method of shipment into Humboldt County and may be expected to increase in proportion to the local population and economic growth. Chemical products are the third largest commodity category and are imported from domestic sources to serve the wood pulp industry.

Existing Facilities

Humboldt Bay currently has 12 deepwater cargo wharves or piers in varying conditions ranging from very good to needing extensive repair or replacement. With the exception of the North Coast Export Pier, all of the piers and wharfs are constructed on wooden piles. None of the wharves or piers are equipped with cranes; given the relatively poor condition of the decking on many of the piers or wharves, it would not be feasible to use mobile cranes without reinforcing the decking and, even then, the loads that could be handled on some of the wharves would necessarily be constrained.

Four of the deepwater wharves are located on the Samoa Peninsula, on the west side of Middle Bay, and all of these are owned by forest products companies. Two of these, the North Coast Exports Co. Wharf and the Louisiana Pacific Chip Wharf, were designed for loading wood chips. These wharves could be used to handle other bulk cargoes but they are not suitable for handling general or neobulk cargoes. The other two wharves, owned by Simpson Paper and Louisiana Pacific, are used to load pulp and lumber, respectively, and could be used for other types of cargoes.

Of the six deepwater facilities in Eureka, three are for liquid bulk cargoes and three are for dry cargoes. The three liquid bulk facilities, UNOCAL, Chevron, and Eureka Oil Terminal, were not designed to handle dry cargoes. Of the remaining three terminals, only the Eureka Forest Products Wharf is in serviceable condition. Dock A, which is owned by the City of Eureka, is in poor condition and could not be used without major renovation. The northern end of Dock B, which also is owned by the City of Eureka, was repaired after a fire and is used to land fish; the southern end was never repaired after the fire and requires replacement. Two other deepwater facilities exist at Fields Landing, but both of these are located on a channel that has a 26 foot controlling depth. The Humboldt Bay Forest Products Wharf is in good condition but the Harbor Marine Services Wharf is in very poor condition and could not be used without major renovation. Table 6-4 summarizes deepwater cargo facilities in Humboldt Bay.

TABLE 6-4

DEEPWATER CARGO FACILITIES

Map Number	Name	Wharf/Pier Frontage	Berthing Space	Construction Type	Condition
City of Eureka					
1	Dock B	60 feet	250 feet	Timber pile w/ timber	North part is fair to good; south part is poor
2	Dock A	375 feet	375 feet	Timber pile w/ timber deck	Needs extensive repair
3	Unocal Wharf	80 feet	650 feet w/ dolphins	Timber pile w/ timber deck	Fair to good
4	Eureka Forest Products Wharf	470 feet	470 feet	Timber pile w/ timber deck	Fair to good
5	Chevron Wharf	152 feet	400 feet w/ dolphins	Timber pile w/ timber deck	Fair to good
6	Eureka Oil Terminal Pier	20 feet	350 feet w/ dolphins	Timber pile w/ timber deck	Fair to good
Samoa Peninsula					
7	Simpson Paper Pulp Wharf	500 feet	700 feet w/ dolphins	Timber pile w/ concrete deck	Good
8	North Coast Exports Co. Wharf	47 feet	1,260 feet w/ dolphins	Steel pile w/ concrete deck	Very good
9	Louisiana Pacific Chip Wharf	50 feet	1,147 feet w/ dolphins	Timber pile w/ timber deck	Good
10	Louisiana Pacific Lumber Wharf	1,060 feet	1,060 feet	Timber pile w/ timber deck	Fair to poor
Fields Landing					
11	Humboldt Bay Forest Products Wharf	600 feet	600 feet	Timber pile w/ timber deck	Good
12	Harbor Marine Services Wharf	1,500 feet	1,000 feet	Timber pile w/ timber deck	Needs extensive repair
Source: Martin O'Connell Associates; City of Eureka					

COMMERCIAL FISHING

Fishing Activity

The commercial fishing industry is a significant contributor to the local economy around Humboldt Bay. Over 200 commercial vessels list Eureka as home port and over 500 vessels from other West Coast ports use the Bay's facilities during each year. Table 6-5 shows the volume of commercial fish landings at Eureka and Fields Landing in comparison with other commercial fishing ports of the northern coast and the state total. Historically, commercial fishing has been an extremely cyclical industry and suffered a long-term decline from 1936 to 1953. Between 1967 and 1975 the catch remained fairly stable. The increase in 1976 was in part due to new technology which opened up new fishing grounds. During the period shown, a decline occurred around 1983 from the impacts of El Niño, and reduction of rockfish and shrimp catches. More recently, the industry shows a significant recovery. The City of Eureka's recent grant to refurbish their fish processing facility will further help increase the capacity of landings at the Eureka Waterfront.

TABLE 6-5
COMMERCIAL FISH LANDINGS

Year	Eureka & Fields Landing	Crescent City	Trinidad	California
1992	21,328,000	39,213,000	873,000	294,432,000
1991	19,580,000	30,166,000	388,000	371,458,000
1990	24,836,000	31,111,000	1,210,000	395,754,000
1989	21,355,000	39,387,000	773,000	484,574,000
1988	26,682,000	36,905,000	918,000	495,693,000

Source: California Department of Fish and Game

Existing Facilities

Commercial fishing facilities are concentrated along the Eureka waterfront from the Eureka Boat Basin to the foot of J Street, Fields Landing, and Trinidad. Boat repair yards are located at Fields Landing, Fairhaven, and on Indian Island. In total, there are 12 fishing boat and other marine facilities within Humboldt Bay. Two of these--the Woodley Island Marina and the Eureka Small Craft Harbor--provide only berthing, and one--the Del Norte Street Pier--is a public fishing pier. Some of the other facilities, such as the K Street Pier, are used only for unloading fish. Table 6-6 summarizes fishing boat and other marine facilities in Eureka. Figure 6-3 depicts deep water cargo, fishing boat, and other marine facilities in Humboldt Bay.

TABLE 6-6
FISHING BOAT AND OTHER MARINE FACILITIES

Map Number	Name	Wharf/Pier Frontage	Berthing Space	Construction Type	Condition
13	Small Boat Basin	n/a	130 berths	Timber pile w/ timber deck	Fair; floats need repair
14	Commercial Street Wharf (includes Pacific Choice)	500 feet	500 feet	Concrete pile w/ concrete deck	Very good
15	Eureka Ice & Cold Storage Wharf	130 feet	130 feet	Wood barge w/ concrete deck	Fair to good
16	Del Norte Street Pier	270 feet	n/a	Concrete piles w/ concrete deck	Very good
17	Landing Dock	290 feet	290 feet	Timber pile w/ timber deck	Poor
18	K Street Pier	40	150	Timber pile w/ timber deck	Good
19	J Street Pier	80	80	Timber pile w/ timber deck	Good
20	Nor-Cal Seafoods	200	200	Timber pile w/ timber deck	Fair
21	Woodley Island	n/a	233	Concrete pile w/ concrete deck	Excellent
22	Johnny's Marina and R-V Park	n/a	70	Timber pile w/ timber deck	Good
23	E-Z Landing R-V Park and Marina	n/a	90	Timber pile w/ timber deck	Good
24	South Bay Marina Pier	160	160	Timber pile w/ timber floats	Fair

Source: Martin O'Connell Associates; City of Eureka

With the exception of the wharves that are owned or operated by the seafood processors, there are no wharves that provide berthing and the space required for fishermen to work on gear and load stores easily. Although fishermen can berth at the Woodley Island Marina or at the Eureka Small Craft Harbor, neither location has the space required for fishermen to work on their gear. Because of the lack of space, fishing

boats find temporary berthing at a number of piers and wharves in Humboldt Bay. The Humboldt Fisherman's Marketing Association has requested that the City of Eureka construct a commercial fishing support facility on a one acre lot located between the Landing Restaurant and the Coast Oyster facility. Although limited in size, this facility would provide an area in which fishing boats could berth temporarily, work on gear, and load stores.

OTHER FACILITIES

Along Eureka's side of the Inner Reach, which is just south of the Samoa Bridge, there are a few active berths or floats. At the foot of F Street is new float owned by the City of Eureka for temporary docking of small boats. The Humboldt Bay Harbor Cruise Dock, located at the foot of C Street, extended, is used to moor the Madaket, a small cruise boat operated by the Humboldt Bay Maritime Museum.

King Salmon, a small, self-contained, residential community located on the eastern shore of Humboldt Bay, is well known as a sportfishing center. King Salmon offers charter boats, party boats, fishing supplies, a fish market that buys and sells fish, and a launching ramp and a hoist used to launch and recover small recreational fishing boats. There also is a trailer park used primarily by recreational fishermen. It is estimated that there are approximately 180 private slips in the King Salmon area, of which approximately 80 are in King Salmon and approximately 100 are between Johnny's Marina and the EZ Landing Marina.

AIR TRANSPORTATION

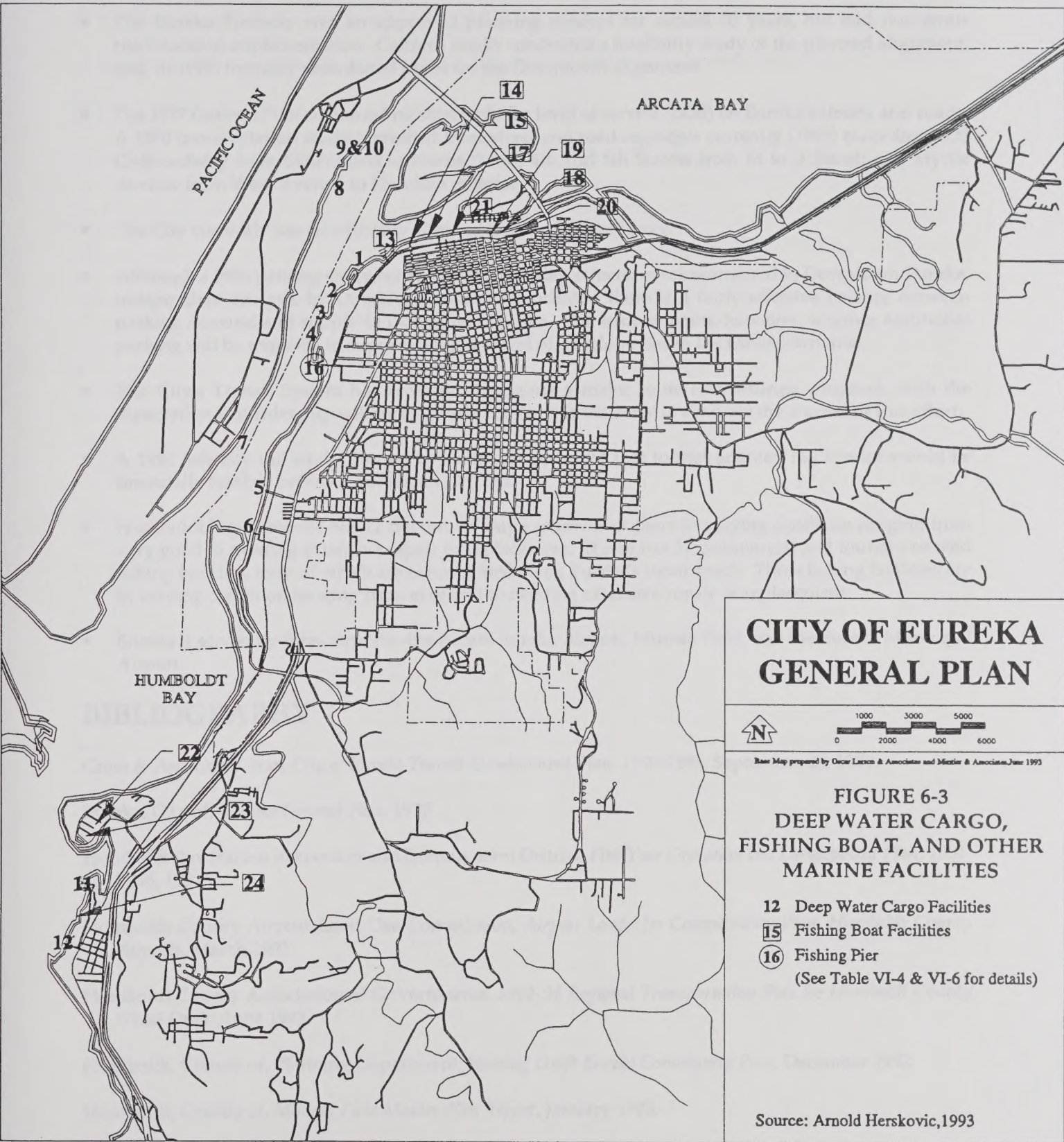
Eureka is served principally by three airports--the Arcata-Eureka Airport, Murray Field, and the Eureka Municipal Airport.

The Arcata-Eureka Airport, located in McKinleyville is Humboldt County's only designated air carrier airport. Located on a 200-foot plateau overlooking the ocean, the airport was originally built by the Navy in 1942 to practice foul weather flying and conduct experiments in fog dispersal. Transferred to Humboldt County by the federal government following World War II, the airport is owned and operated by Humboldt County. Airport facilities include two runways (one 6,000 and one 4,500 feet long), a full service passenger terminal built in the 1970s with an Economic Development Act Grant, several hangers, and a Coast Guard search and rescue base. Only one airline, United Express, currently (December 1993) provides daily scheduled passenger service to San Francisco, Sacramento, and Crescent City.

Murray Field, Humboldt County's busiest general aviation airport, is located on U.S. 101 just east of Eureka Slough, within Eureka's city limits. The airport property encompasses 146 acres. Facilities include two runways (one 3,000 and one 2,030 feet long), maintenance hangers, storage hangers, administrative offices, pilots lounge, and restaurant owned by Humboldt County. Seventy-nine aircraft are currently (1993) based at the airport and there were an estimated 63,464 operations in 1990. The airport is used by both single- and twin-engine propeller aircraft.

The Eureka Municipal Airport, owned by the City of Eureka, is a general aviation airport located on the Samoa Peninsula near Fairhaven. Airport facilities, which include one 2,700-foot runway and various buildings, occupy about 200 of the 600 acres of City-owned property in the immediate area. The airport is used primarily by single engine propeller airplanes for personal and business purposes. According to the 1990 California Aviation System Plan, there are six single-engine aircraft based at the airport and an estimated 5,000 operations each year.

FINDINGS



FINDINGS

- The Eureka Freeway was an approved planning concept for almost 20 years, but had numerous roadblocks to implementation. Caltrans finally conducted a feasibility study of the planned alignment, and, in 1995, formally abandoned plans for the Downtown alignment.
- The 1977 General Plan contained no standards for level of service (LOS) on Eureka's streets and roads. A 1990 transportation study identified three street and road segments currently (1993) exceeding LOS C--Broadway from Downtown to Harris Street; 4th and 5th Streets from M to V Street; and Myrtle Avenue from West Avenue to Harrison Avenue.
- The City currently has no officially adopted truck route ordinance.
- Although a 1986 parking study concluded that parking structures are warranted in Downtown Eureka, independent analysis by Dowling Associates concluded there is a fairly effective balance between parking demand and supply in Downtown Eureka. The issue remains, however, whether additional parking will be required to support a higher level of development in the Downtown area.
- The City's Transit System has recently undergone a major route restructuring program, with the expectation that ridership will increase as a result. It is too early to evaluate the success of this effort.
- A 1992 intercity rail study funded by Caltrans concluded that tourist-oriented rail service would be financially feasible between Eureka and Willits.
- Humboldt Bay currently has 12 deepwater cargo wharves or piers in varying condition ranging from very good to needing extensive repair or replacement. It also has 12 commercial and tourist-oriented fishing facilities, most of which are concentrated along Eureka's inner reach. These fishing facilities are in varying condition ranging from excellent to needing extensive repair or replacement.
- Eureka is served by three airports--the Arcata-Eureka Airport, Murray Field, and the Eureka Municipal Airport.

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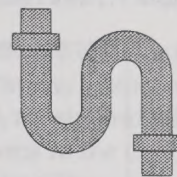
Crooks, Steve, Acting General Manager, North Coast Railroad Authority

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CHAPTER 7

PUBLIC FACILITIES AND SERVICES



INTRODUCTION

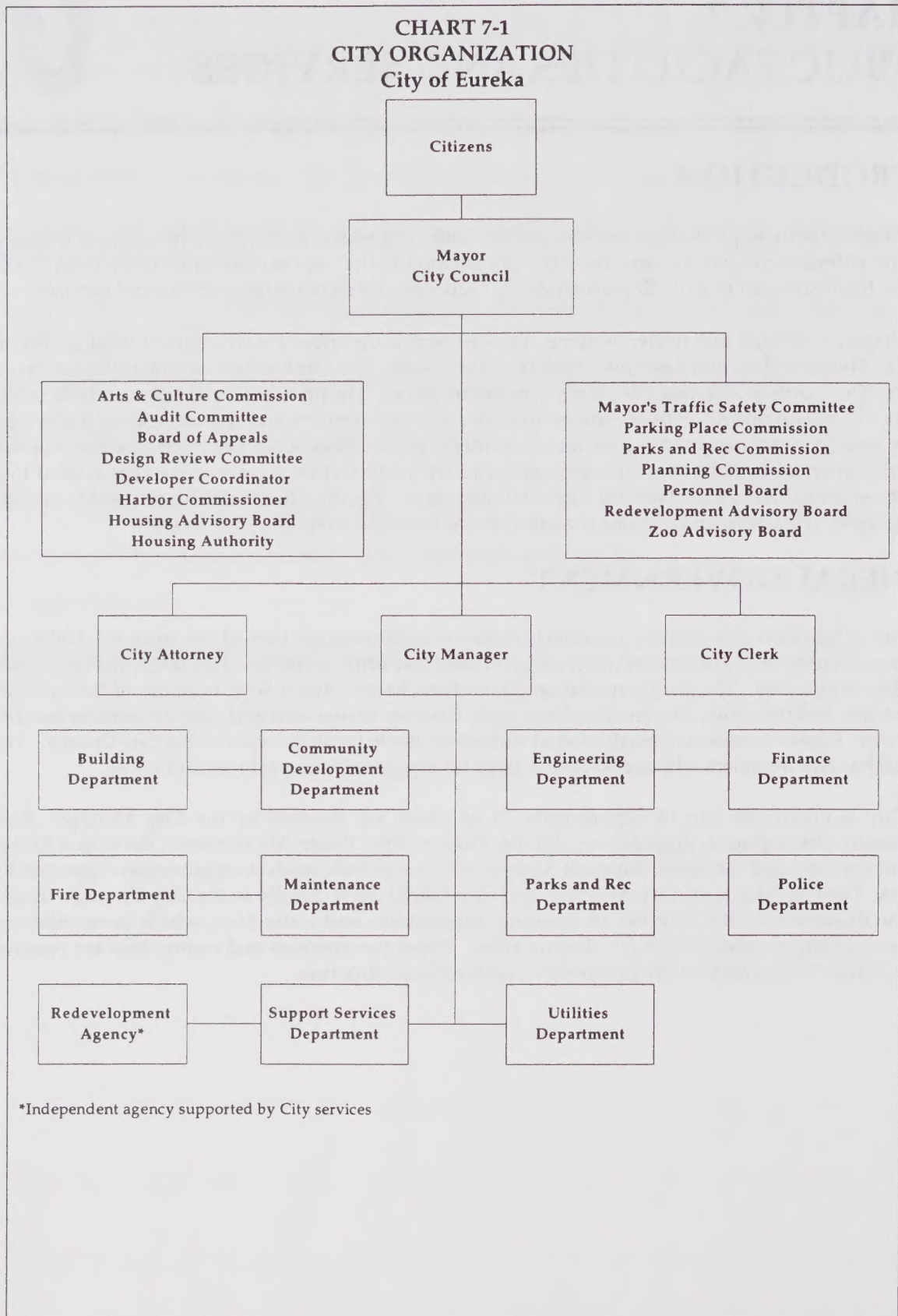
This chapter discusses public facilities and services, including water, wastewater, drainage, utilities, schools, and law enforcement and fire services. The information in this report comes primarily from the City of Eureka, the Humboldt County Superintendent of Schools, and recent infrastructure and services studies.

This chapter is divided into twelve sections. The first section describes the structure of local government in Eureka. The second section describes Eureka's water system. The third section describes the sanitary sewer system. The fourth section describes the storm drain system. The fifth section discusses school facilities in Eureka. The sixth and seventh sections summarize law enforcement and fire facilities and services. The eighth section describes solid waste and hazardous waste collection. The ninth section summarizes information on other public facilities and services. The tenth section is a set of findings related to public services and facilities in the General Plan Planning Area. Finally, the eleventh and twelfth sections list bibliographic references and persons consulted in the course of preparing this chapter.

GENERAL GOVERNMENT

The City of Eureka is a charter city operating under a council-manager form of government. Unlike general law cities, charter cities are formed when citizens frame and adopt a charter to establish the organization of basic law for the city. The state constitution guarantees charter cities a large measure of "home rule" over local affairs, and therefore, charter cities have more freedom to innovate and pass ordinances according to local need. Eureka's mayor is directly elected and votes only to break tie votes by the City Council. The City Council has five members who are elected at large for staggered four-year terms of office.

The City is organized into 14 departments, 11 of which are directed by the City Manager: Building, Community Development, Engineering, Utilities, Finance, Fire, Police, Maintenance, Parks and Recreation, Support Services, and the Redevelopment Agency, which is an independent organization supported by City services. The City Manager, City Attorney, and City Clerk report directly to the City Council. In addition to these departments, the City has 15 standing commissions and committees which have either specific decision-making responsibilities or advisory roles. These commissions and committees are summarized below. Chart 7-1 shows the City of Eureka's organizational structure.



- **Arts and Culture Commission.** The Arts and Culture Commission consists of five members and has the powers and duties to: 1) advise the City Council on all matters pertaining to art, literature, music, and other cultural matters; 2) formulate and recommend programs relating to art, literature, music, and other cultural activities; 3) recommend the acceptance or rejection of art and cultural donations to the City; 4) review the annual budget; and 5) formulate and recommend rules for the use of the City's cultural facilities.
- **Audit Committee.** The Audit Committee consists of five members and has the powers and duties to provide the City Council with recommendations regarding the City's financial operations and to conduct ongoing oversight of City audits.
- **Board of Appeals.** The Board of Appeals consists of seven members, including the City Building Official and six other members, and has the powers and duties to hear appeals from decisions of the City Building Official.
- **Design Review Committee.** The Design Review Committee consists of three members, including the City Building Official, the Director of Community Development, and one other member, and has the powers and duties to review development proposals for consistency with the City's design standards and guidelines.
- **Development Coordination Committee.** The Development Coordination Committee consists of 17 members, including one representative from each City department and one from each utility company in Eureka. It has the powers and duties to review development proposals and identify problems early in the City's review process.
- **Harbor Commission.** The Harbor Commission consists of five members and has the powers and duties to: 1) conduct studies and make recommendations regarding bay and harbor improvements, development of land contiguous to Humboldt Bay, and development and redevelopment of the Small Craft Harbor; 2) determine those projects and activities best suited to sensible development of Humboldt Bay; 3) work with other governmental or civic bodies to conduct planning studies, surveys, or projects relating to the use or development of Humboldt Bay and contiguous land areas; and 4) actively promote public relations between the City and users of Humboldt Bay.
- **Housing Advisory Board.** The Housing Advisory Board consists of nine members and has the powers and duties to review, coordinate, and advise the City on housing policy and program activities.
- **Housing Authority.** The Housing Authority consists of seven members, including a tenant commissioner and an elderly commissioner, and has the powers and duties to develop and to manage permanent housing. The Housing Authority also administers various local, state, and federal housing programs for Eureka, including Federal Department of Housing and Urban Development Section 8 voucher and certificate rental subsidy programs.
- **Mayor's Traffic Safety Committee.** This committee was formed to serve as a focal point for all traffic safety efforts in the greater Eureka area, with the objective of making the streets and sidewalks of the city safer for all. It consists of representatives from law enforcement, the judiciary, traffic and highway engineers, law prosecutors, alcohol and drug rehabilitation facilities, education, City government, news media, the California Department of Motor Vehicles, Mothers Against Drunk Driving, and various segments of private businesses. The Committee solicits the participation of any agency, business organization, or individual interested in promoting traffic safety.
- **Parking Place Commission.** The Parking Place Commission consists of seven members and has the powers and duties to: 1) advise the City Council on all matters pertaining to vehicle parking districts established in the city; 2) advise the City Council on all matters pertaining to public off-street and on-

street vehicle parking; 3) recommend provisions in the annual budget for public vehicle parking facilities; and 4) formulate and recommend policies for acquisition, development, and improvement of parking facilities.

- **Parks and Recreation Commission.** The Parks and Recreation Commission consists of nine members and has the powers and duties to: 1) advise the City Council in all matters pertaining to public recreation and public parks, squares, and grounds; 2) recommend provisions in the annual budget for recreation and park purposes; 3) recommend the acceptance or rejection of park and recreational donations to the City; 4) formulate and recommend a comprehensive municipal recreation and park program; 5) recommend schedules for charges for services rendered by the Department of Public Services; 6) formulate and recommend rules and regulations for the use and improvement of public parks, squares, and grounds; and 7) formulate and recommend the acquisition, development, and improvement of parks and recreation areas.
- **Planning Commission.** The Planning Commission consists of five members and has the powers and duties to: 1) formulate and recommend the adoption, amendment, or repeal of the Eureka General Plan and any precise plans for the physical development of the city; 2) perform all functions assigned to it by the City Charter and the State relating to planning and zoning; 3) recommend the approval, denial, or modification of all maps or plats for the subdivision of land; 4) hold hearings on planning and zoning matters; and 5) formulate and recommend a coordinated five-year program for public improvements.
- **Personnel Board.** The Personnel Board consists of five members and has the powers and duties to: 1) hear appeals relative to conditions of employment, disciplinary actions, dismissals, demotions, suspensions, or alleged violations of the City's personnel rules; 2) hold hearings and make recommendations on any matters of personnel administration; and 3) advise on problems concerning personnel administration or policy.
- **Redevelopment Advisory Board:** Established in June 1993, the Redevelopment Advisory Board consists of seven voting and three non-voting members and has the powers and duties to: 1) monitor Redevelopment Agency progress on Grand Jury recommendations; 2) review and make recommendations on private development proposals which are requesting Redevelopment Agency funds; 3) review and make recommendations on special requests for Redevelopment Agency funding from outside organizations; and 4) work with staff to develop five- and ten-year plans for the Redevelopment Agency.
- **Zoo Advisory Board.** The Zoo Advisory Board consist of nine members and has the powers and duties to: 1) advise on the operation, maintenance, and improvement of the Eureka City Zoo; 2) recommend the acceptance or rejection of donations to the zoo; and 3) formulate and recommend rules and regulations for the use, management, and operation of the zoo.

City offices are located in five facilities: City Council chambers and most City departments are located in City Hall at 531 K Street; the Fire Department is located at 533 C Street; the Police Department is located at 604 C Street; the Maintenance Department's central garage is located at 945 West 14th Street; and the Parks and Recreation Department is located in the Adorni Center at 1011 Waterfront Drive.

In addition to City offices, Eureka, as the seat of Humboldt County, contains various County offices. The largest of these offices is the County Courthouse. The County Courthouse is located one block west and one block north of the City Hall and provides office and other space for the services of numerous County offices which include: Board of Supervisors, County Administrative Office, Personnel, Purchasing, County Counsel, Auditor, Tax Collector, Assessor, the Municipal and Superior Courts, Jury Commissioner, County Clerk, Fire Marshal, Sheriff's Department, County Jail, and the County library. The County is currently (January 1994) expanding its operations into a facility located on the block east of the present Courthouse. The expansion

is expected to include the construction of correctional facilities and court-related facilities. The County is also in the process of building a new library to the east of the Ingomar Club, at the corner of 3rd and O Streets.

In addition to the agencies located at the County Courthouse, Eureka also contains the Humboldt County Health Department, located at 6th and I streets; the Humboldt County Public Works Department, located at 2nd and L Streets; the Humboldt County Planning Department, Building Department, Mental Health Department, and the District Attorney's Office, located at Harris and H Streets in the Clark Complex; the Humboldt County Social Services Department, located on Koster Street; the County motor pool located at 2nd and J Streets; and the County Road Maintenance headquarters, located on Jacobs Avenue

WATER SYSTEM

The City of Eureka's water treatment and delivery system currently (1993) provides treated water to approximately 10,500 users. Approximately 87 percent were residential users and 13 percent were commercial users. This translates into an average daily demand of 3.3 million gallons per day (mgd). Raw water (i.e., chlorinated but untreated) is purchased by the City from the Humboldt Bay Municipal Water District (HBMWD). HBMWD currently produces a capacity of 20 mgd of water from its five Ranney wells in the Mad River near Essex. HBMWD water is brought to Eureka through a 42-inch to 24-inch supply line reaching Eureka from the north by Old Arcata Road and from a peninsula supply line which extends under Humboldt Bay and supplies a pumping facility on Truesdale Street near the bay. Both of these supply lines may be subject to failure during a major seismic event, and such failure could result in prolonged water shortages for Eureka. Figure 7-1 shows the location of existing water supply facilities in Eureka.

The City of Eureka further treats raw water from HBMWD at the city filtration plant only when the quality of the water supplied does not meet state or federal standards. This plant, which is currently operated on a part-time basis by the City, was constructed in 1951 and is outdated. HBMWD and its user agencies (i.e., Eureka, Arcata, Blue Lake, etc.) are currently (January 1994) evaluating options for upgrading the water treatment system at Essex to provide 21 mgd in conformance with the Environmental Protection Agency's (EPA) current rulings with respect to surface water sources. One option for meeting EPA standards related to additional turbidity removal is for HBMWD to build a new treatment plant at a cost of about \$16 million in 1993 dollars. Alternatively, the City of Eureka could opt to rebuild its own treatment plant.

Eureka's water distribution system is generally adequately sized. Although water audits indicate water losses for the system, the majority of difficulties arise from the use of old mains in the north part of Downtown. These distribution mains were originally placed in the early 1900s and many are in need of replacement. The City has a five-year capital improvement program which proposes leak detection surveys and annual allocations for water main replacement. The City has two major water storage facilities. The first is an open-air storage tank with the capacity of 20 million gallons located on the northerly end of Walnut Drive. The second storage facility, located on Harris and K Streets, has a 0.5 million gallon elevated steel tank, and a 1.0 million gallon surface steel tank. Both of these storage facilities are old and may require replacement.

The Humboldt Community Services District (HCSD) is currently under contract to buy up to 3.3 mgd of water from HBMWD through the year 2020. HCSD has a contract with the City of Eureka to accept HBMWD water from the city system. HCSD also has three wells that can supply approximately 1,700 gallons per minute. HCSD is expected to participate in the regional water treatment plant of HBMWD.

SANITARY SEWER SYSTEM

The City of Eureka's sanitary sewer system consists of an extensive wastewater collection and treatment system. The collection system includes three major and numerous minor lift stations. The treatment system

includes a plant located in the south part of the city along Humboldt Bay, a bay outfall, wetland pond storage, and sludge placement facilities.

According to the City of Eureka, the City had approximately 10,500 users as of July 1993. Approximately 87 percent were residential users and 13 percent were commercial users. In addition to supplying the needs of Eureka, the City of Eureka sanitary sewer system also provides service to the HCSD for the treatment of approximately 1.42 mgd of wastewater each year; this includes service to Humboldt Hill and Fields Landing.

WASTEWATER COLLECTION SYSTEM

The City's wastewater collection system is generally adequate to serve existing developed areas. The most significant difficulties in operating and maintaining the system relate to the age of the collection piping. The length of the collection system is approximately 704,000 feet. The pipe is as old as 50 years or more in some locations and needs to be upgraded and replaced. Sewage service capacity is not currently available to the commercially-zoned area on Indianola Road.

Major infiltration/inflow (I/I) studies, prepared in 1980 in anticipation of the installation of the City's wastewater treatment facility, indicate excessive levels of I/I. The Greater Eureka Service Area was divided into four major subareas to determine infiltration/inflow (I/I) peaks. The I/I peaks recorded at the then-existing three treatment plants (now lift stations only) were plotted against the rainfall for that day. A summary of the average dry weather flows, average wet weather flows, and estimated I/I for each facility for the years 1975 to 1979 are shown in Table 7-1. The results indicate that, on the average, 4.13 mgd of I/I entered the three facilities during the five wet months (November to March) every year.

TABLE 7-1
AVERAGE DRY AND WET WEATHER FLOWS AND INFLOW/INFILTRATION
City of Eureka Treatment Facilities¹
(Millions of Gallons Per Day)

Year	Murray Street			McCullens Avenue			Hill Street		
	ADW ²	AWW ³	I/I	ADW	AWW	I/I	ADW	AWW	I/I
1973-74	1.92	7.16	5.24	0.04	1.30	0.66	0.93	1.69	0.76
1974-75	1.97	4.17	2.2	0.51	1.03	0.52	1.04	2.19	1.15
1975-76	<i>Drought years--Not included in this analysis</i>								
1976-77									
1977-78	1.91	4.38	2.47	0.34	0.70	0.36	1.15	2.02	0.87
1978-79	1.82	3.34	1.53	0.36	0.70	0.34	1.19	1.63	0.44

Notes: ¹These treatment facilities are no longer in operation and now operate as lift stations only.

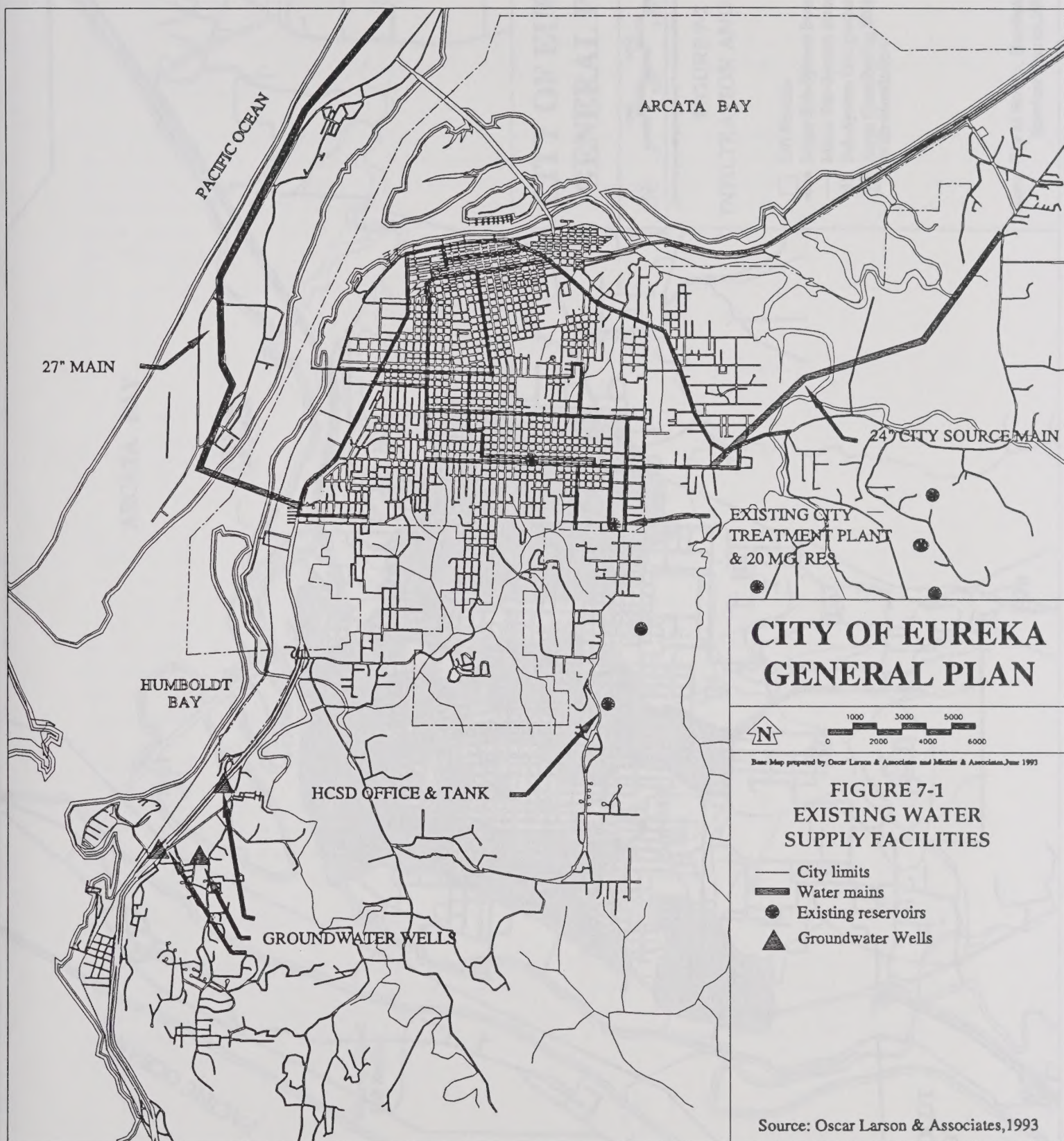
²Average dry weather flow is calculated from June 1 through October 15.

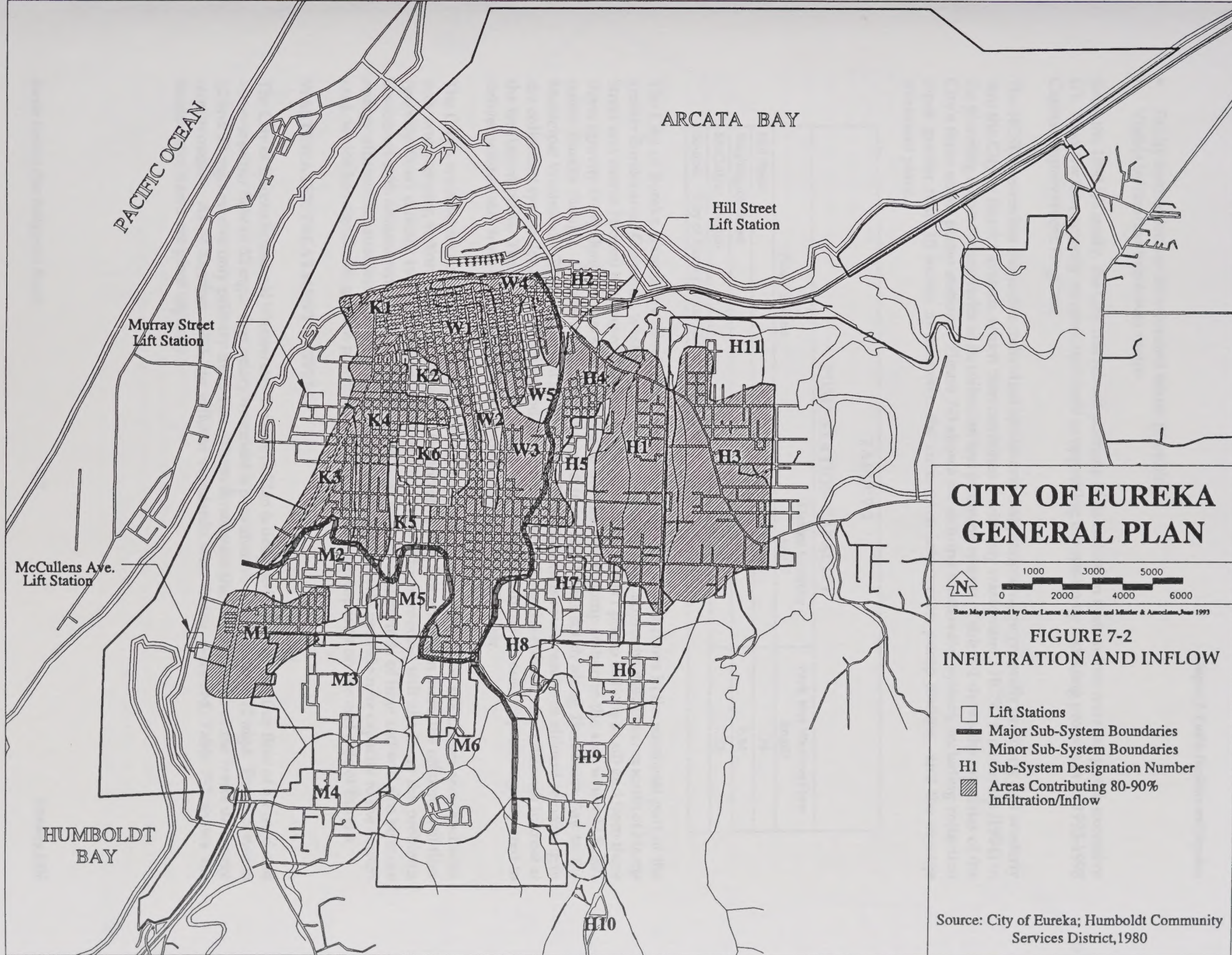
³Average wet weather flow is calculated from November 1 through March 30.

Source: Oscar Larson & Associates

The 1980 studies found that approximately 80 to 90 percent of I/I originated from subsystems H2, H4, K3, K4, M1, M5, W1, W2, W3, and W4. Figure 7-2 shows the boundaries of these subsystems. The major I/I sources continue to be:

- Illegal roof drains
- Broken laterals
- Depressed manholes
- Uncapped abandoned sewer laterals





- Faulty connections or deteriorated house plumbing
- Visible infiltration into sewer mains

Since the 1980 I/I study, the City has rebuilt portions of its collection system that were subject to excessive I/I. Also, the City recently recommitted itself to upgrading the system by including projects in its 1993-1998 Capital Improvement Program.

The HCSD system has numerous individual lift stations that pump sewage generally northerly and westerly into the City of Eureka system, which then combines it with city wastewater. HCSD is currently (1994) in the planning stages for upgrades to its collection and pumping system. Table 7-2 shows the capacities of the City's three major pump stations. Figure 7-3 shows the existing wastewater system, including collection pipes greater than 10 inches in diameter, the cross-town interceptor, pump stations, and the sewage treatment plant.

TABLE 7-2		
PUMP STATION CAPACITY		
Pump Station	Design Capacity (mgd)	Peak Wet Weather Flow (mgd)
Hill Street	7.6	4.98
Washington Street	18.7	6.84
McCullens Avenue	4.9	2.13
Source: City of Eureka; Oscar Larson & Associates		

The City of Eureka is currently developing plans to reroute wastewater flows in the southeast part of the greater Eureka area. Currently, wastewater from the Cutten area (i.e., approximately the area south of Harris Street and east of J Street) is pumped north to the Sequoia Park area (11 pump stations in all) and from there flows (gravity flow) along the east side of Eureka to the Hill Street pump station in the area where U.S. 101 meets Eureka Slough. Wastewater is then pumped from Hill Street south along Humboldt Bay to the Municipal Wastewater Treatment Plant at Elk River. This circuitous route results in effluent remaining in the collection system for an extended period of time, thereby making the effluent more difficult to treat at the treatment plant. The system is also very energy inefficient due to the amount of pumping required to deliver wastewater from the Cutten area to the treatment plant at Elk River.

The City's wastewater collection rerouting plan would collect wastewater from the Cutten area, and with only one pumping station pump the effluent to the top of Martin Slough. From there, the effluent will flow (gravity flow) directly to the treatment plant at Elk River. This rerouting will eliminate the problems associated with effluent remaining in the collection lines for extended periods of time and will also be more energy efficient because less pumping is required. Such a system will provide new capacity to the Cutten area, which has significant growth potential, and will also free-up capacity on the east side of Eureka.

WASTEWATER TREATMENT SYSTEM

The City of Eureka Municipal Wastewater Treatment Plan is designed for a dry-weather flow of 5.2 mgd and a wet-weather flow of 32 mgd. Secondary treatment is provided for all flows up to 12 mgd. Flows between 12 and 32 mgd receive only primary treatment. These flows meet the effluent limits of the waste discharge requirements. As of October 1993, no effluent standards were being exceeded. Table 7-3 shows the wastewater treatment plant capacity.

TABLE 7-3		
WASTEWATER TREATMENT CAPACITY		
1992		
	Design Flows (mgd)	Actual Flows (mgd)
Average Dry Weather Flow (ADWF)	5.2	4.6
Peak Dry Weather Flow (PDWF)	8.6	5.6
Peak Daily Flow	23.2	11.6
Peak Wet Weather Flow (PWWF)	32.2	11.6
Source: City of Eureka; Oscar Larson & Associates.		

Disposal of effluent from the wastewater treatment plant is released by a 48-inch outfall extending westerly from the plant into Humboldt Bay. Discharges from the plant are controlled to be released with the outgoing tide. The system is continually monitored and has capacity for full utilization of the wastewater treatment plant. The City operates a series of wetland storage ponds which store water for release during the outgoing tide. The City also operates a sludge disposal area between Elk River and north of Spruce Point on the west side of U.S. 101. This area is dedicated to the injection of sludge into the ground and has sufficient capacity to support the wastewater treatment plant.

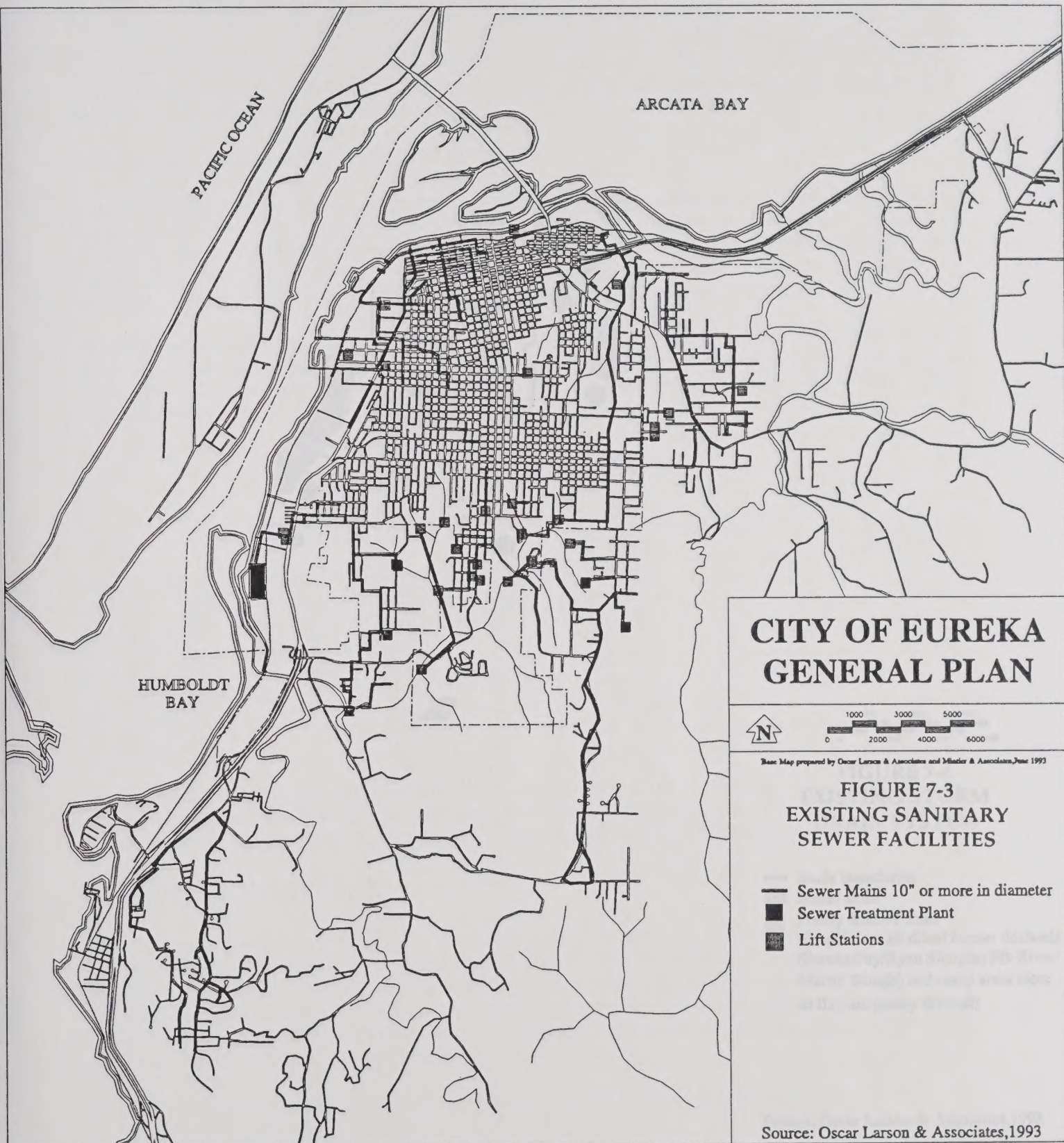
The City's wastewater treatment plant is under the jurisdiction of the California Regional Water Quality Control Board, North Coast Region (RWQCB). The liquid discharges to the wetlands area and the sludge disposal program are part of the approved NPDES permit program for wildlife management of the Elk River impacted area. The City requires pretreatment of all industrial waste discharges. Order No. 74-151 from the RWQCB contains an approved contingency plan and notification requirements for "accidental spills and discharges" in the event of violations.

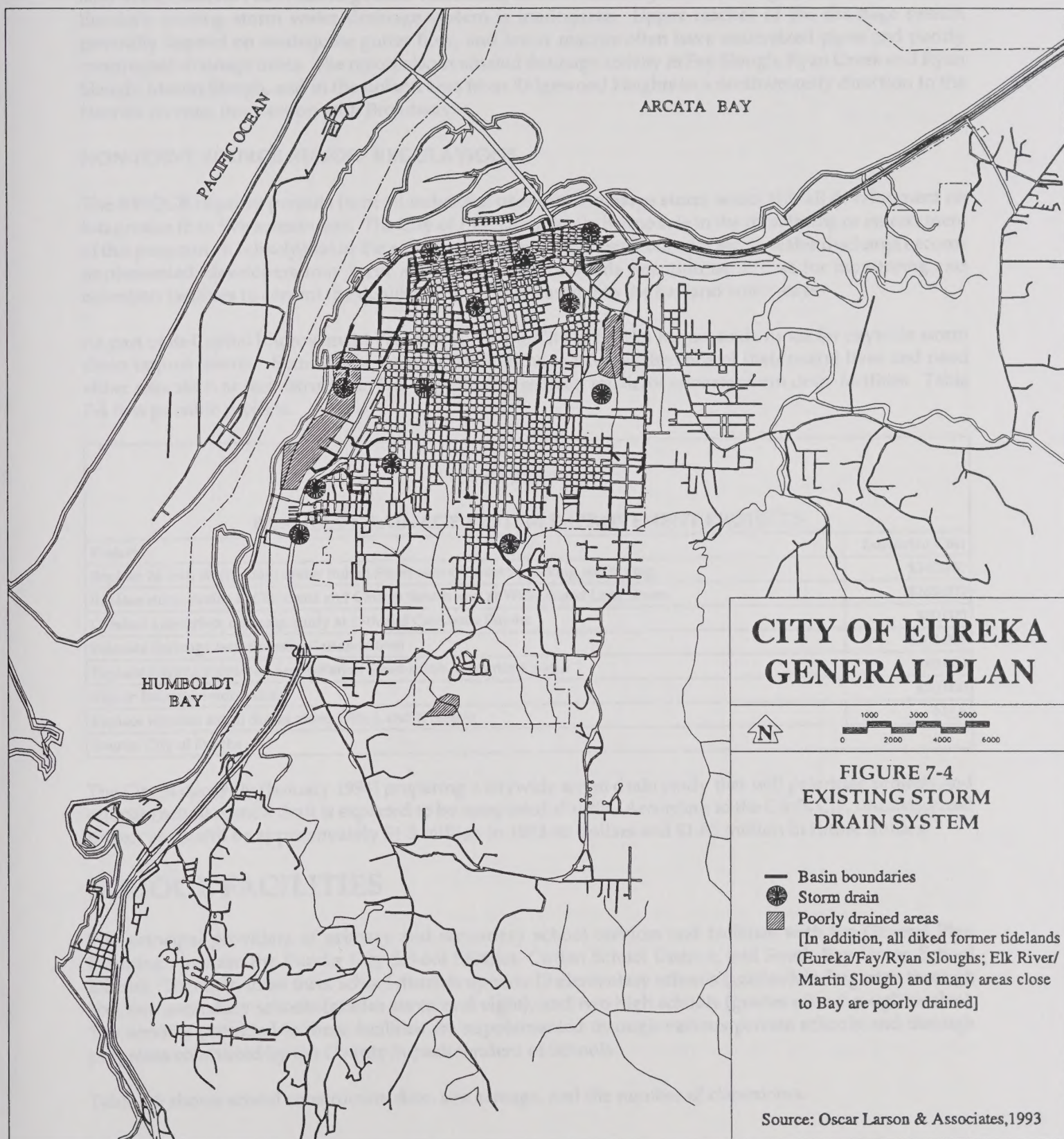
STORM DRAINAGE SYSTEM

The majority of Eureka is located on a terrace that slopes gradually upwards from the bay on the north and west to approximately 100 feet in elevation to the south and east. The topography contains both large and small natural drainages which have both ephemeral and perennial streams. According to the most recent 30-year average, Eureka experiences approximately 37.5 inches of rainfall each year. Seventy-three percent of the annual rainfall occurs between the months of November and March.

A large percentage of the storm drainage network in Eureka is made up of street (gutter) flow. Drainage pipes and drainage ditches ultimately flow to either natural drainages or larger subterranean pipe drains that ultimately lead to the bay. Slopes generally are sufficient at the upper reaches to provide cleansing velocities. The majority of pipe is concrete, with some corrugated metal pipe and plastic. Undeveloped drainageways or gullies within Eureka consist of shallow to steep slopes covered with riparian vegetation. Drainages tend toward flat marshland in their lower reaches adjacent to the bay. Both silver salmon (Coho) and steelhead are reported in the various sloughs that are not blocked off by tidegates.

Responsibility for storm drainage in the General Plan Planning Area falls into various jurisdictions: the City of Eureka, California Department of Transportation (Caltrans), and the County of Humboldt are responsible for operations, and the County, the California Coastal Commission, and the Regional Water Quality Control Board have regulatory authority. Street maintenance and drainage outside of the city limits are the responsibility of Humboldt County. Street maintenance and drainage for Broadway, 4th Street, 5th Street, and other portions of Highway 101 are the responsibility of Caltrans as part of the state highway system. Figure 7-4 shows the Eureka's existing storm drainage system.





The City of Eureka is currently (1993) preparing a storm drainage master plan, which covers 11,392 acres of land in the General Plan Planning Area. According to the *Preliminary Storm Drainage Master Plan*, much of Eureka's existing storm water drainage system is inadequate. Upper reaches of the drainage system generally depend on inadequate gutter flow, and lower reaches often have undersized pipes and poorly constructed drainage inlets. The report also evaluated drainage activity in Fay Slough, Ryan Creek and Ryan Slough, Martin Slough, and in the upland area from Ridgewood Heights in a northwesterly direction to the Herrick Avenue intersection with Broadway.

NON-POINT SOURCE RUNOFF REGULATIONS

The RWQCB requires permits from all industrial uses that discharge storm water and all development on lots greater than five acres in size. The City of Eureka currently has no role in the monitoring or enforcement of this program. It is likely that as the rules, requirements, and regulations for storm water discharge become implemented, developers may incur additional costs for solids retention as well as for monitoring and detention facilities to control the quality of effluent released into the bay and waterways.

As part of its Capital Improvement Program (CIP), the City of Eureka has set aside funds for citywide storm drain improvements. Some of the existing facilities have reached the ends of their useful lives and need either relocation or reconstruction. The City plans to replace, repair, or relocate storm drain facilities. Table 7-4 lists possible projects.

TABLE 7-4 POSSIBLE DRAINAGE SYSTEM IMPROVEMENT PROJECTS	
Project	Estimated Cost
Replace 24-inch storm drain under Buhne Street near Q Street by jacking and boring	\$240,000
Replace storm drains at California and Church Streets and at William and Long Streets	\$260,000
Conduct subsurface drainage study at 15th and California Streets	\$30,000
Relocate drainage facilities near Garland Street	\$305,000
Replace existing culvert under McFarlan Street south of Myrtle Avenue	\$40,000
Repair Truesdale storm drain	\$30,000
Replace wooden storm drains along 17th, J, and K Streets	N/A
Source: City of Eureka	

The City is currently (January 1994) preparing a citywide storm drain study that will prioritize projects and estimate actual costs; a draft is expected to be completed shortly. According to the City's CIP, uncategorized project costs will be approximately \$1.5 million in 1992-93 dollars and \$1.85 million in future dollars.

SCHOOL FACILITIES

The principal providers of primary and secondary school services and facilities with the General Plan Planning Area are the Eureka City School District, Cutten School District, and South Bay Union School District. Together, these three school districts operate 13 elementary schools (grades Kindergarten through six), two secondary schools (grades seven and eight), and two high schools (grades nine through twelve). The services provided at these facilities are supplemented through various private schools and through programs conducted by the County Superintendent of Schools.

Table 7-5 shows school construction date, site acreage, and the number of classrooms.

TABLE 7-5

SCHOOL FACILITIES
1992/93 School Year

Grade Level	School	Construction Date	Site Acreage	Number of Classrooms
Elementary (K-6):	Alice Birney	1954	8.0	19
	Cutten			12
	Grant	1950	10.1	11
	Jefferson ¹	1941	2.2	12
	Lafayette	1953	7.8	12
	Lincoln	1941, 1955	3.8	18
	Marshall	1941	3.2	16
	Pine Hill	1963	7.0	13
	Ridgewood			10
	St. Bernards			9
	South Bay	1954	13.0	18
	Washington	1953	8.2	11
	Worthington	1956	5.8	10
Junior High (7-8):	Winship	1965	33.8	24
	Zane	1965	37.0	35
Senior High (9-12):	Eureka	1925, 1965	32.7	84
	Barnum ²	1939		6
Pre-Schools:	Backyard, 4865 Hidden Meadows Lane			
	Calvary Lutheran, South and Prospect Avenues			
	Creative Playhouse Christian, 2920 A Street			
	Humboldt Childcare Council, 805 7th Street			
	Little People's Corner, 3844 Walnut Drive			
	Mistwood Montessori, 1801 10th Street			
	Moore Avenue Children's Center, 2937 Moore Avenue			
	Northwoods Christian School, 2020 Campton Road			
	Sunny Days Christian, 819 15th Street			
	Teacher's Pet Educational, 1826 Hodgson			
	Tiny Tots Child Discovery Center, 3371 Harrison Avenue			
	Winzler Children's Center, 717 Creighton			
	Woodside, J and Hodgson			
	Worthington Head Start, 3400 Erie			
Administration:	Humboldt County Schools Administrative Headquarters	1941	6.2	n/a
Notes: ¹ A year-round school.				
² The site acreage for this facility is included within the Worthington Elementary School.				
Source: Humboldt County Superintendent of Schools.				

According to the Eureka City School District, Eureka schools currently (June 1993) enroll 5,860 students. The non-profit Roman Catholic diocese also has an elementary school with about 40 students; and a senior high school (grades 9-12) with about 350 students. Table 7-6 shows attendance at Eureka City School District schools as of June 1993. Figure 7-5 shows the locations of school facilities in the General Plan Planning Area.

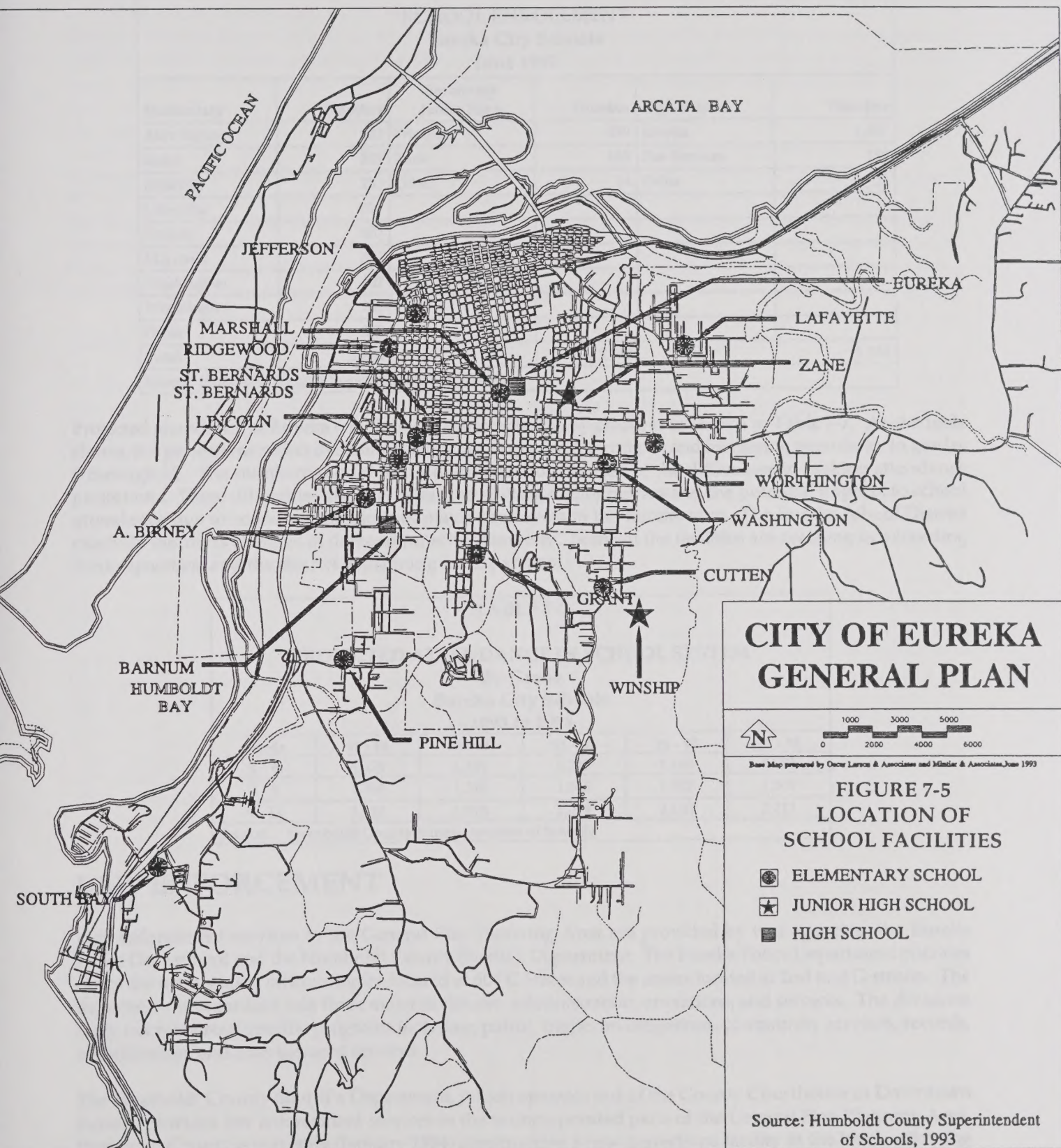


TABLE 7-6 SCHOOL ENROLLMENT Eureka City Schools June 1993					
Elementary	Number	Secondary Junior High	Number	High School	Number
Alice Birney	531	Winship	439	Eureka	1,662
Grant	301	Zane	689	Zoe Barnum	150
Jefferson	253	Other	14	Other	22
Lafayette	327				
Lincoln	407				
Marshall	392				
Washington	407				
Worthington	265				
Other	265				
Total	2,884		1,142		1,834
Source: Humboldt County Superintendent of Schools					

Projected attendance at Eureka City School District schools, by grade, is as shown in Table 7-7. As the table shows, the projections reflect declining attendance in grades K through 6 and increasing attendance in grades 9 through 12. The numbers should be used with caution because of the difficulties in making attendance projections. These difficulties are due, in part, to shifting demographics and the potential impacts to school attendance due to economic decisions of major employers in the Eureka area. The Eureka School District carefully monitors changes in demand for school services. Some of the facilities are reaching or exceeding their capacities, and the district is planning for expansion.

TABLE 7-7 PROJECTED ATTENDANCE IN SCHOOL SYSTEM By Grade Eureka City Schools 1993 to 1998					
Grade	93 - 94	94 - 95	95 - 96	96 - 97	97 - 98
K - 6	4,425	4,339	4,249	4,168	4,073
7 - 8	1,288	1,316	1,346	1,332	1,308
9 - 12	1,832	1,915	2,019	2,110	2,211
Source: Humboldt County Superintendent of Schools					

LAW ENFORCEMENT

Law enforcement services in the General Plan Planning Area are provided by two agencies--the Eureka Police Department and the Humboldt County Sheriff's Department. The Eureka Police Department operates out of the main station office complex located at 604 C Street and the annex located at 2nd and D streets. The department is organized into three major divisions: administration, operations, and services. The divisions carry out numerous specific programs including patrol, traffic, investigations, community services, records, identification, and management services.

The Humboldt County Sheriff's Department, which operates out of the County Courthouse in Downtown Eureka, provides law enforcement services in the unincorporated parts of the General Plan Planning Area. Humboldt County is currently (January 1994) constructing a new corrections facility in the block adjoining

the existing County Courthouse. The new facility is designed to accommodate a larger population than the current, and generally antiquated, facilities at the courthouse.

According to a May 1991 Police Department report to the Eureka City Council, the major law enforcement problems facing the city are: 1) serious crime, 2) significant traffic safety issues, and 3) personnel strength. Each of these problems is discussed below.

CRIME

Eureka has a serious crime problem. The city is ranked in the top 18 percent of all California cities in the highest per-capita crime rate. The crime rate is 97 percent above the national average, and the city has the highest crime rate (per-police employee) of any of the 26 California cities having populations between 25,100 and 30,000 residents. The high per-capita crime rate in Eureka may be due in part to the the large number of people living in adjacent unincorporated areas who contribute to crime in the city. The crime rate in Eureka is commensurate with a California city of 50,000 residents. Table 7-8 summarizes crime statistics for the City of Eureka for the years 1988 to 1992.

TABLE 7-8					
EUREKA POLICE DEPARTMENT MONTHLY POLICE STATISTICS					
1988 to 1992					
	1988	1989	1990	1991	1992
Crime Reports					
Part I ¹	2,773	2,991	2,441	2,104	2,598
Part II ²	3,798	4,127	7,653	6,967	7,806
Total	6,571	7,118	10,094	9,071	10,404
Arrests					
Adult Felony	588	637	533	419	532
Adult Misdemeanor	3,683	4,051	4,112	3,803	3,756
Juvenile Felony	56	57	58	51	53
Juvenile Misdemeanor	252	230	258	229	244
Total	4,579	4,975	4,961	4,502	4,585
Notes: ¹ Murder, manslaughter, rape, robbery, aggravated assault, burglary, larceny, auto theft, and arson. ² Other assault, forgery, fraud, embezzlement, possession of stolen property, vandalism, weapons violations, prostitution, sex offenses, narcotic violations, domestic violence, child abuse, elder abuse, drunk driving, liquor laws, public drunkenness, disturbing the peace, traffic offenses, local warrant arrest, outside warrant arrest, other offenses, Juvenile 300, Juvenile 601, restraining order, property bookings, missing persons, animal violations, abandoned vehicles, repossessed vehicles, stolen vehicles recovered, mental holds					
Source: Eureka Police Department					

In response to increases in the crime rate, the Eureka Police Department is currently promoting proactive programs that involve a high level of communications, support, and interaction between the citizens of the community and members of the Police Department. Examples of such programs include: 1) comprehensive citywide neighborhood and business "watch" programs; 2) directed deterrent patrol; 3) regular neighborhood patrols that stress personal communications between officers and citizens; and 4) comprehensive crime prevention services such as security surveys, property identification, crime alerts, bulletins, and newsletters. Other programs, such as "Adopt a School" and "Stop and Talk," further emphasize the critical police-community interaction that has proven successful in other communities.

TRAFFIC SAFETY

The Eureka Police Department is also responsible for traffic safety. Efforts are currently (1993) underway within the Police Department to expand traffic safety programs. Two police officers have been trained as

motorcycle officers. One officer is assigned to full-time traffic enforcement and one officer will be so assigned whenever existing vacancies are filled and operational demands allow. As the total sworn strength of the Department is increased, patrol officers will also be able to devote more of their time and attention to selective traffic enforcement and to reducing the number of traffic law violations and accidents within the city. The Police Department, through its Explorer Scout Program, also recently (1993) began utilizing its radar "Reader Board" along the roadside in hazardous locations to encourage voluntary speed reduction. Such usage will increase as the Explorer Scout Program expands and other staffing problems are effectively resolved. Other programs being considered by the Police Department include: 1) enhanced traffic accident analysis data for directed enforcement efforts; 2) traffic safety education programs such as bicycle safety rodeos; 3) pedestrian safety campaigns; and 4) regular public safety announcements.

According to the Eureka Police Department, its ability to develop and maintain effective traffic enforcement and public education programs has been severely hampered by staff vacancies and service demands far exceeding the staffing resources that are available. Traffic flow and patterns within the city have continued to increase and change as the community grows and develops.

PERSONNEL STRENGTH

The Eureka Police Department employs 17 non-sworn personnel and 3 part-time personnel along with the 44 sworn officers. The ratio of sworn police officers to 1,000 residents is 1.71, using the estimated 1993 population of 25,700 within the city limits of Eureka and the present personnel component of 44 sworn officers. It is estimated that there are cumulatively 50,000 persons in the area (including the city limits and outlying areas) served by the City of Eureka Police Department; factoring in the population of the unincorporated service area, the City's Police Department has a ratio of 0.9 officers per 1,000 persons. The regular complement of personnel is augmented through the use of part-time crossing guards, police reserve officers, and citizen volunteers. Eureka's police services are augmented through mutual aid and similar agreements with the Humboldt County Sheriff's Department.

The number of staff positions necessary to meet overall policing needs vary, depending on the level of service demanded and the level of crime in a community. Smaller communities, such as Eureka, have traditionally expected a high level of service, including personal contacts by police officers. While a minimal level of police department staffing is easily identified to meet basic and mandated law enforcement needs, the final number of positions that are authorized varies with the financial resources available to the department. According to the Eureka Police Department, the department needs additional police personnel to respond to increasing crime rates and meet the basic law enforcement and public safety needs of the community. The department is working to minimize the effect of personnel shortfalls in three ways: 1) use of advanced technology and techniques, 2) substantial training and education of its personnel, and 3) advancing community-based policing programs that involve the city's citizens as active participants in policing the city's neighborhoods.

FIRE FACILITIES

Fire services and activities are conducted out of the headquarters located at 533 C Street and at substations located at Henderson and Ocean Streets and Myrtle and West. Humboldt Fire District No. 1, California Department of Forestry (CDF), and the Fairhaven Fire District provide fire services to the unincorporated Planning Area. Fire District No. 1 headquarters are located on Harris Street near Redwood Acres with a substation located on Herrick Avenue. The CDF headquarters are located in Fortuna. The Fairhaven Fire District station and headquarters are located on the Samoa Peninsula in Fairhaven.

The Eureka Fire Department is responsible for the following functions:

- **Emergency Response:** Emergency response includes fire suppression, explosives, hazardous material incidents, medical, other emergencies, and rescue.
- **Prevention Activities:** Prevention activities include investigations (fire and complaints), bureau inspections, company inspections, code enforcement, plan checks, safety advisement, and emergency planning.
- **Service Calls:** Service calls include investigations (complaints), lockouts, water removal, hazardous conditions, and other assistance as needed.
- **Public Relations:** Public relations include fire safety classes, fire safety presentations, media relations, and staffing for a safety advisor position.
- **Communications:** Communications include 911 PSAP and fire and police dispatch.
- **General:** This category includes training, maintenance of equipment/facility, and standby.

The Department provides service out of three fire stations with three engine companies, a single truck company, and a Fire Prevention Bureau. The Department maintains two reserve engines, one reserve truck, and an Office of Emergency Services engine. Minimum staffing levels are three professional fire fighters per engine and two professional fire fighters per truck. A reorganization is pending which may affect the number and distribution of the positions. Table 7-9 shows current (1993) City of Eureka Fire Department's staffing levels.

TABLE 7-9	
EUREKA FIRE DEPARTMENT STAFFING LEVELS	
1993	
Position	Staffing Level
Fire Chief	1
Commanders	3
Fire Marshal	1
Prevention Captain	1
Communications Manager	1
Suppression Personnel	31
Dispatchers	9
Secretary	1
Total	48
Source: City of Eureka Fire	

Table 7-10 shows Fire Department incident reports over the five-year period 1987 to 1991.

TABLE 7-10

INCIDENT REPORTS
Eureka Fire Department
1987 to 1991

Type of Incident	1987	1988	1989	1990	1991
Structure Fire	133	145	129	122	114
Explosion	0	0	4	0	3
Extrication	10	8	9	16	6
Grass/Brush	38	27	32	29	34
Vehicle Fire	58	49	54	44	54
Medical Aid	987	1125	1138	1006	1014
False Alarm	30	27	30	N/A	40
Private (PFAS)	150	196	184	195	126
Chimney Fire	45	30	27	12	N/A
Mutual Aid	6	12	19	N/A	12
Refuse Fire	24	44	57	38	50
Hazardous Condition	N/A	18	37	104	37
Hazardous Material	5	9	11	N/A	24
Investigation	202	142	191	186	196
Service Call	110	103	139	179	168
Bomb Threat	0	0	3	0	0
Not Classified				101	185
Total Reports	1864	1915	2064	2032	2063
Property Damage Value	\$1,867,300	\$483,575	\$394,325	\$807,200	\$1,157,100

Source: City of Eureka Fire Department

Development in the harbor and along the waterfront will require enhancement of existing fire suppression techniques and equipment. Response to this need has included the recent purchase of a fire boat. The City is also considering alternative water sources for fire suppression along the waterfront for use during natural disasters that may render existing sources inoperative and for catastrophic-proportion fire incidents that require supplemental resources. Alternatives include incorporating fire apparatus draft sites into any pier or wharf development and high volume portable pumps to establish a relay system capable of supporting fire apparatus in the downtown area.

SOLID WASTE AND HAZARDOUS WASTE COLLECTION

Solid waste and hazardous waste collection services in Eureka are provided by the County of Humboldt, which contracts with a private company to operate the county's only landfill operation, which is located on Cummings Road. The operating company also maintains a transfer station on West Hawthorne Street in Eureka. The county landfill is expected to reach capacity in 2008. Humboldt County is currently (1993) conducting a landfill siting study to select a location for expanded landfill capacity.

Assembly Bill 939 (AB 939), or the Integrated Waste Management Act of 1989, requires all California counties to prepare a countywide integrated waste management plan and a regional agency to prepare a regional integrated waste management plan, consisting of specific elements addressing reduction of solid waste entering state landfills, and requires a Household Hazardous Waste Component within the Source Reduction and Recycling Element. The plan adopted by the agency requires the review and approval or disapproval of the California Integrated Waste Management Board. The act requires the Board to adopt rules and regulations, as necessary, to carry out the act. Because of the significance of household hazardous waste (HHW) beyond its small percentage of the total waste stream, AB 2707 elevated that component to a separate Household Hazardous Waste Element. AB 2641 allowed "small quantity commercial source" participation in HHW collection programs, and AB 2597 has encouraged the collection of recyclable HHW. The later bills took effect on January 1, 1991.

In June 1992, the City adopted its *Source Reduction and Recycling Element*. The element addresses the diversion of various components of waste and establishes estimated percentages of diversion. Table 7-11 provides a summary of the diversion by percentage and component.

TABLE 7-11			
PROGRAM DIVERSION BY PERCENTAGE			
Program	Current Diversion	Diversion by 1995	Diversion by 2000
Source Reduction	7.4%	9.0%	10.7%
Recycling	11.6%	18.5%	24.7%
Composting	0.0%	3.1%	9.9%
Special Waste	3.5%	4.7%	5.3%
Totals	22.5%	35.3%	50.6%
Source: City of Eureka			

In June 1992, the city also adopted its *Household Hazardous Waste Element*. The element selects three alternative collection programs for household hazardous waste (HHW). The programs include:

- Expanded drop-off facility for recyclable HHW
- Periodic drop-off days for all HHW
- Permanent HHW drop-off facility

The City of Eureka does not have a formal program for non-household hazardous waste collection, although the City is working with Humboldt County to develop a countywide program.

OTHER PUBLIC FACILITIES AND SERVICES

LIBRARY

The primary public library facility in Eureka is operated by the County of Humboldt at the County Courthouse located at 5th and I Streets. The library will relocate to a new facility on 3rd Street adjacent to the Carson Mansion in Old Town Eureka. The facility will be a multi-story regional library designed to meet current demand standards for the community. The new facility will eventually accommodate 225,000 volumes, but initially will be limited to 175,000. The library will have a start-up staff of 25 full-time employees. At full operating capacity and with minimal budgetary constraints, the library is expected to employ 33 persons full-time.

The City of Eureka operates a library administrative office at the historical library building located at 7th and F Streets. This facility is not currently open to the public, but is planned for structural upgrades to meet current seismic requirements.

NATURAL GAS

Natural gas is provided to the General Plan Planning Area by the Pacific Gas & Electric Company (PG&E). PG&E currently (1993) delivers over seven million cubic feet of natural gas annually to its regional customers. Approximately 25 percent of this volume is mined from the local gas wells in the Tompkins Hill, area with the remainder of the gas being imported from a supply pipeline from the Central Valley near Red Bluff. About one-third of the gas is used by industry, with the balance going to residential use.

PG&E maintains the natural gas lines which provide distribution and service throughout the city and surrounding areas. Natural gas is transported into the area in pipes up to 12 inches in diameter and is distributed in pipes that range in size from one inch to six inches.

ELECTRICITY

Pacific Gas & Electric Company (PG&E) also supplies electricity to the General Plan Planning Area. Power is supplied to the Eureka area grid by two fossil fuel units located at Buhne Point, 115 kv lines from the California grid near Red Bluff, an 11 megawatt cogeneration facility in Blue Lake, and a 21 megawatt wood-fired cogeneration facility on the Samoa Peninsula. Buhne Point also has a nuclear unit, placed into operation in 1963, which was closed down in 1987. Fuels still reside in the plant and will be removed in accordance with a program monitored by the Nuclear Regulatory Commission. The Eureka area consumes about 400,000 megawatt hours per year of electricity.

TELEPHONE

Basic telephone service in Eureka is provided by Pacific Bell. Long-distance service is provided by the AT&T Company, MCI, and Sprint. United States Cellular Mobile Telephone Network has constructed two cellular phone towers—one located in McKinleyville and one located near Scotia.

MEDICAL FACILITIES AND SERVICES

The city's medical facilities and services are generally concentrated around the two private hospitals located on Harrison Avenue—General Hospital (99 beds) and St. Joseph Hospital (97 beds). Numerous medical professional offices and services are generally concentrated in the area around the hospital facilities and include dentists as well as doctors. In addition, several professional offices are located in the Harris and H streets area and the 6th and G Streets area. Convalescent homes, nursing facilities, and rest homes are located throughout the General Plan Planning Area.

In addition to privately-provided services, the County of Humboldt Health Department provides health services and programs from its facilities located in Downtown Eureka. The Health Department employs a staff of approximately 120 employees and conducts the following three programs: 1) personal health services, 2) environmental health services, and 3) direct service support. Each program category is described generally below:

Personal Health Services

Personal health services are activities directed toward individuals or groups of people within the county. Programs falling in this category include health education, maternal and child health (MCH), public health nursing field services, clinics, and communicable disease control/epidemiology.

Environmental Health Services

Environmental health services are activities directed at preventing or correcting conditions in the environment which may have a negative health impact on individuals or the population at large. This is accomplished through a variety of activities ranging from inspection of food establishments to reviewing construction plans in order to avoid potential health threats. These activities are carried out by Environmental Health Specialists who have been registered by the State of California.

Direct Service Support

The Health Department maintains a State-certified public health laboratory which provides a full range of laboratory services. These services include lab work associated with health clinics, AIDS testing and counseling, rabies testing, and court-ordered testing for parents of children in protective custody (referred from Social Services). The Health Department also operates a pharmacy which provides services to clinics, the jail medical program, and the AIDS azidothymide (AZT) program, and acts as a general information resource for all department programs.

FINDINGS

- The city's main surface water supply feeder line (Ryan Slough) requires repair and maintenance.
- The existing City water treatment plant is becoming antiquated, and compliance with surface water treatment regulations may necessitate the improvement of the facility.
- Existing water storage facilities in the city (0.5 million gallon elevated tank and/or 1.0 million gallon surface tank) are old and may require replacement.
- The City's wastewater collection system has significant infiltration and inflow (I/I) problems.
- The City could realize efficiencies in its wastewater collection system by rerouting wastewater collection in the Cutten area through Martin Slough.
- The Eureka Municipal Wastewater Treatment Plant is designed to treat up to 32.2 mgd (peak wet weather flow) of wastewater effluent. The plant currently (1992) treats 11.6 mgd of wastewater effluent.
- Some Eureka schools are reaching or exceeding their enrollment capacity.
- The number of crimes reported to Eureka Police Department has increased significantly in the last five years.
- Harbor-related development may require additional fire suppression equipment and new or techniques to provide adequate fire support.

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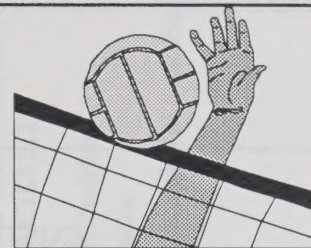
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CHAPTER 8

RECREATIONAL AND CULTURAL RESOURCES



INTRODUCTION

This chapter discusses recreational and cultural resources, including historical and archeological resources. The information in this chapter comes primarily from the City of Eureka and from recent plans and studies of recreational and cultural resources in the General Plan Planning Area.

This chapter is divided into five sections. The first section summarizes existing park and other recreational facilities and assesses the adequacy of these facilities. The second section discusses cultural resources, including both historical and archeological resources. The third section is a set of findings related to recreational and cultural resources in the General Plan Planning Area. Finally, the fourth and fifth sections list bibliographic references and persons consulted in the course of preparing this chapter.

PARKS AND RECREATION

Eureka is located on California's scenic North Coast and is within easy reach of several recreation areas of state, national, and even international significance. These include Redwood National Park, Six Rivers National Forest, Humboldt Bay National Wildlife Refuge, Patrick's Point State Park, and Humboldt Redwoods State Park. Of these, only the Humboldt Bay National Wildlife Refuge is located within the General Plan Planning Area. The Planning Area also contains various local and regional park and recreation facilities. Existing park standards and park and recreation facilities and programs are summarized below.

PARK STANDARDS

The Eureka General Plan Planning Area primarily contains neighborhood and community parks. Neighborhood parks primarily serve the needs of residents living within one-half to three-quarters of a mile from the park, and are from one to five acres in size. Park improvements are usually oriented toward the recreation needs of children and typically include tot lots, children's play structures, and unlighted sports fields and/or courts.

Community parks primarily serve the needs of residents living within three-quarter to two miles of the park, and are from 30 to 50 acres in size. Park improvements are usually oriented to all age groups, and typically include large landscaped areas, restrooms, lighted sports fields, and specialized equipment and resources not found in neighborhood parks. Community parks may also include community centers and swimming pools.

Regional parks are defined as areas of natural beauty used for picnicking, boating, fishing, swimming, camping, and trail uses. Regional parks serve populations that can reach the facility within a one-hour driving time.

The 1977 General Plan contains various standards for the development of park and recreational facilities in Eureka, including standards for neighborhood and community parks. The 1977 General Plan contains no standard for regional parks. Table 8-1 summarizes open space and recreation standards contained in the 1977 General Plan.

TABLE 8-1
EXISTING OPEN SPACE AND RECREATION STANDARDS
1977 General Plan

Type of Facility	Radius of Service (miles)	Service Population	Site Size (Acres)	Acres per Thousand Persons	Location
Tot Lot	Within High-Density Development	100 to 500	3,000 to 6,000 square feet	As Needed	Within High Density Area, Access from Local Street
Neighborhood Park	1/2 to 3/4	3,000 to 8,000	1 to 5	1.0	Near Center of Neighborhood, Access from Collector Street
Community Park	3/4 to 2	8,000 to 20,000	30 to 50	3.0	Near Boundary of Residential Area, Access from Arterial Street
Golf Course (18-hole)	Up to 45 minutes travel time	25,000 to 35,000	120 to 160	1 Hole Per 1,500 People	Access from Arterial
Greenways and Trails	3/4 to 2 to access point	25,000 to 35,000	One Trail System	10.0	Within Residential Areas and/or Scenic Areas, Access from Community Parks and Schools

Source: 1977 City of Eureka General Plan

Standards for neighborhood and community parks contained in the 1977 General Plan vary significantly from generally-accepted national standards. The City of Eureka's 1977 General Plan standard for neighborhood and community parks, as shown in Table 8-1, is from one to three acres of park space per 1,000 persons (the City has no standard for regional parks). According to a 1983 National Park and Recreation Association publication, however, the recommended total close-to-home park space (i.e., neighborhood or community parks or playgrounds that are within a one- to two-mile radius of the population served) is from 6.25 to 10.5 acres per 1,000 persons in a community. Eureka currently (1993) has approximately 110.8 acres of park space. With a population of approximately 27,000 inhabitants, the ratio of park space to population in Eureka is 4.10 acres per 1,000 persons. The recommended standard for regional park space is 15 to 20 acres per 1,000 inhabitants. Eureka is fortunate in having tens of thousands of acres of public recreation lands within a one-hour driving radius, so the area greatly exceeds the recommended regional standard.

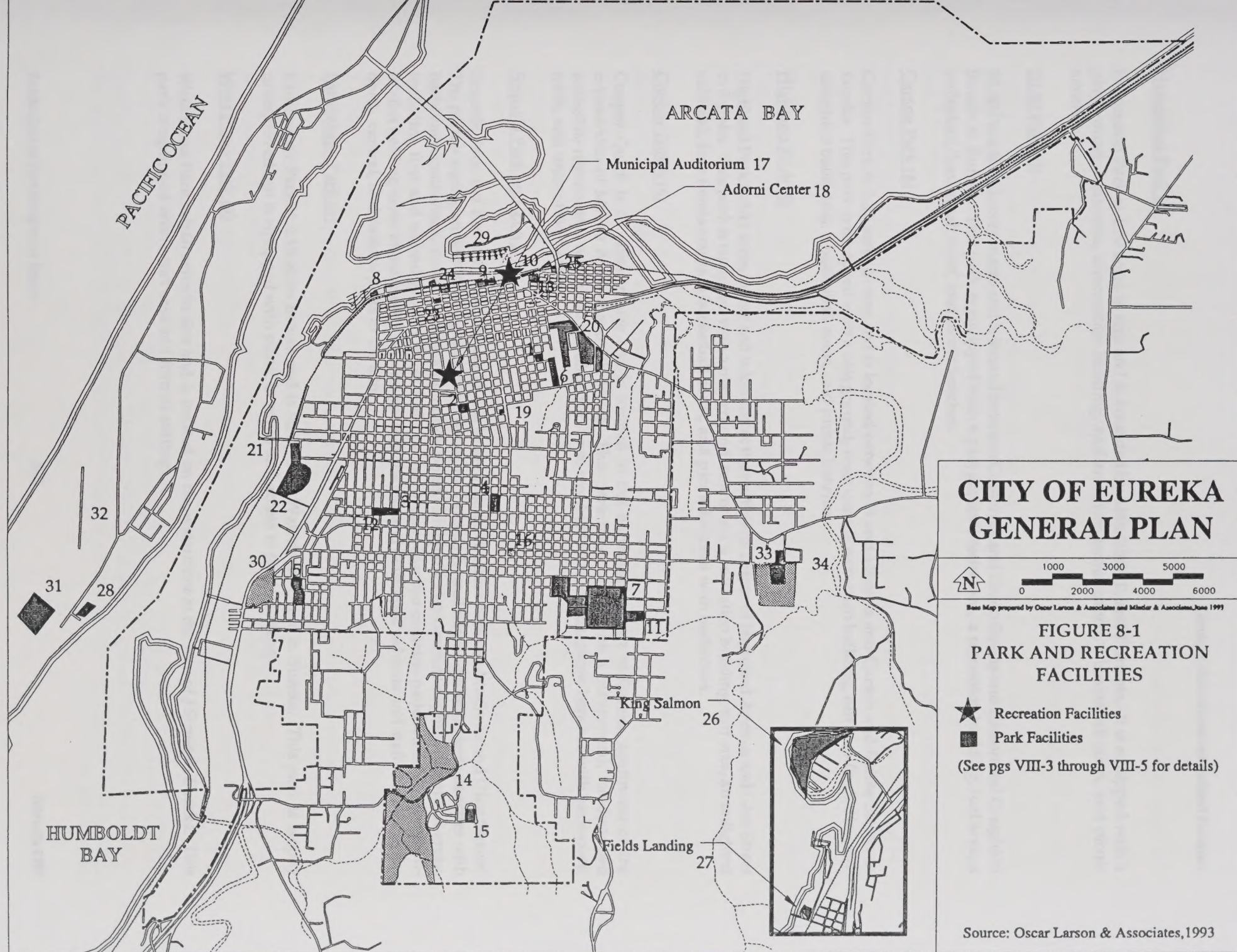
PARK AND RECREATIONAL FACILITIES

The General Plan Planning Area contains numerous park and recreational facilities, most of which are owned and operated by the City of Eureka. The Bureau of Land Management, State Department of Parks and Recreation, Humboldt Bay Harbor Recreation and Conservation District, and County of Humboldt Parks Division also operate facilities in the Planning Area. Park and recreational facilities in the Planning Area are summarized below and shown in Figure 8-1. The numbers listed after the facility names in the following descriptions correspond with the numbers shown on Figure 8-1.

City Parks

Ross Park (1)

Ross Park is 1.44 acres in size and is located between 10th and 11th Streets and M and N Streets in Eureka. This park is equipped with a playground, a basketball court, restrooms, a recreation building, turf area, and formal seating.



Hammond Park (2)

Hammond Park is 1.39 acres in size and is bounded by 14th, 15th, E, and F Streets. It is equipped with a playground, restrooms, a recreation building, turf area, two tennis courts, a basketball court, and picnic benches.

20-30 Park (3)

20-30 Park is 2.83 acres in size and is located between California and Union Streets and Carson and Creighton Streets in Eureka. This park is equipped with a playground, restrooms, a recreation building, turf area, a volleyball/basketball court, and picnic benches.

Carson Park (4)

Carson Park is 3.22 acres in size and is located between H and I Streets and Carson and Buhne Streets in Eureka. This park is equipped with a playground, restrooms, a recreation building, turf area (including two unlighted ballfields), a basketball court, and picnic benches.

Highland Park (5)

Highland Park is 3.41 acres in size and is located at the northwest corner of Highland Avenue and Glen Street in Eureka. This park is equipped with a playground, restrooms, a recreation building, turf area, an unlighted ballfield, four tennis courts, a basketball court, and picnic benches with barbecues.

Cooper Gulch (6)

Cooper Gulch is 33 acres in size and is located in the northeastern part of Eureka, southwest of the intersection of Myrtle Avenue and 7th Street. This park is equipped with a playground, handicapped accessible restrooms, a recreation building, turf area, two lighted ballfields, picnic benches with barbecues, trails, and unimproved areas.

Sequoia Park and Zoo (7)

Sequoia Park and Zoo is 77 acres in size and is located along W Street between Madrone and Glatt Streets. The park is equipped with a playground, restrooms, turf area, a formal flower garden, picnic benches with barbecues, cookshack, trails, gazebo, and a duck pond. The park also contains significant natural areas, including first and second growth forest and riparian areas. The zoo contains paddock exhibits and off-exhibit holding areas in the south and west parts of the site and developed exhibits and staff facilities in the north, central, and eastern parts of the site.

Lamoreaux Park (8)

Lamoreaux Park is 0.15 acres in size and is located on Waterfront Drive in Eureka. This park is largely unimproved but is equipped with picnic benches and access to the waterfront.

West Plaza Park (9)

West Plaza Park is 0.60 acres in size and is located on the waterfront at the foot of J Street in Eureka. This park is equipped with a turf area and formal seating.

Sacco Amphitheater (East Plaza) (10)

Sacco Amphitheater is 0.94 acres in size and is located on Waterfront Drive at the foot of L Street, adjacent to Humboldt Bay. The park is equipped with a lighted amphitheater with formal seating and picnic benches.

Hartman/Kennedy Ball Park (11)

Hartman/Kennedy Ball Park is 4.90 acres in size and is located between W and Dolbeer Streets, near Sequoia Park in Eureka. The park is equipped with two lighted ballfields, restrooms, horseshoe pits, formal seating, and a snackbar.

Jacobs/Haney Ball Park (12)

Jacobs/Haney Ball Park is 2.35 acres in size and is located adjacent to 20-30 Park between Union and Summer Streets and Creighton and Carson Streets in Eureka. The park is equipped with restrooms, turf area (including one unlighted ballfield), formal seating, and a snackbar.

Clara May Berry Park (13)

Clara May Berry Park covers 1.0 acre and is located on the corner of P and 3rd Streets. This park site is currently (January 1994) unimproved, but improvements are scheduled for completion within the next 24 months.

Eureka Municipal Golf Course (14)

The Eureka Municipal Golf Course is a 120-acre complex located near Martin Slough. The facility consists of an 18-hole golf course, a maintenance building, a snack bar/pro shop building, and a driving range.

Lundbar Hills Park (15)

Lundbar Hills Park is located on Frederick Drive in Lundbar Hills. The park is currently undeveloped.

Miscellaneous Recreational Facilities, Public Space, and Natural Areas

The following facilities are operated and maintained by the City of Eureka. Some of the buildings included in the summary are available for rent by the City for wedding receptions, birthday parties, seminars, receptions, and other public and private meetings.

Carson Memorial Building (16)

The Carson Memorial Building is located at 3015 J Street and includes 8,300 total square feet with a 435-person maximum occupancy.

Eureka Municipal Auditorium (17)

The Eureka Municipal Auditorium is located at 1120 F Street. It has a maximum capacity of 2,300 persons with a 30-foot by 70-foot stage area.

Adorni Recreation Center (18)

The Adorni Recreation Center is located at 1011 Waterfront Drive. It features a 8,040-square foot gymnasium, a 420-square foot kitchen facility, a weight room, an aerobics/dance room, arts and crafts room, and meeting room.

Ryan Youth Activity Center (19)

The Ryan Youth Activity Center is located at 1653 J Street. The activity center consists of a single 2,500 square foot building used for teaching and youth activities, including drop-in activities and classes. The center has a well-equipped arts and craft facility and a computer room.

Cooper Gulch Recreation Center (20)

The Cooper Gulch Recreation Center is located at 1320 10th Street. The center consists of a single 1,800 square foot building used for public meetings, receptions, group meetings, classes, and special events.

Del Norte Street Pier (21)

The Del Norte Street Pier is located at the foot of Del Norte Street. This park offers picnic benches, bay frontage, and fishing.

Palco Marsh (22)

The Palco Marsh, which is approximately 86.0 acres in size, abuts Vigo Street on the southwest side, then runs north to Hawthorne and Felt Streets, and continues along Felt to its end at Del Norte Street. This marsh is undergoing wetlands restoration and includes seating areas and access to trails.

Clarke Plaza (23)

Clarke Plaza is 0.15 acres in size and is located on the corner of E and 3rd Streets in Old Town Eureka. It is equipped with formal seating.

Old Town Gazebo (24)

The Old Town Gazebo is located on 0.42 acres at 2nd and F Streets. It is equipped with formal seating and a gazebo.

P Street Boat Launch Ramp (25)

The P Street Boat Launch Ramp is located adjacent to the foot of P Street under the Samoa Bridge. The facility consists of a single concrete boat ramp, which is maintained by the City of Eureka.

Recreational Facilities in the Unincorporated General Plan Planning Area

The following recreational facilities are located within the General Plan Planning Area outside of the Eureka city limits.

King Salmon Restoration Area (26)

King Salmon Restoration Area is located in King Salmon west of Buhne Drive. The area is designed for passive recreation and includes a scenic trail.

Fields Landing Boat Ramp (27)

Fields Landing Boat Ramp is located at the end of Railroad Avenue at the shoreline of south Humboldt Bay. This facility consists of the boat ramp, chemical restrooms, and a floating pier. This facility is maintained by the County of Humboldt Parks Department.

Samoa Boat Ramp (28)

Samoa Boat Ramp is located on the Samoa Peninsula approximately one mile north of the mouth of Humboldt Bay, with frontage on the west side of the bay. This facility consists of the boat ramp and restrooms, and overnight camping with a camp host usually available. This facility is maintained by the County of Humboldt Parks Department.

Woodley Island Marina (29)

Woodley Island Marina and boat launching facility is located on the south side of Woodley Island. Charter boats are available for sightseeing and fishing. This facility has 237 permanent berths, a restaurant, and retail and office uses. The marina is maintained by the Humboldt Bay Harbor Recreation and Conservation District.

Fort Humboldt State Historic Park (30)

Fort Humboldt State Historic Park, which is a partially reconstructed 19th century military post, is located just off U.S. 101 on Highland Avenue. In addition to buildings and exhibits portraying military life during the 1850s and 1860s, the park also has a logging museum. Fort Humboldt State Historic Park is operated by the State Department of Parks and Recreation.

Samoa Spit Off-Highway Vehicle Area (31)

Samoa Spit Off-Highway Vehicle Area is located on the sand dunes at the southern end of the Samoa Peninsula. This off-road vehicle park is under development by the U.S. Bureau of Land Management.

Samoa Dragstrip (32)

The Samoa Dragstrip is located on Samoa Peninsula at the site of the Eureka Municipal Airport. The dragstrip is used during the Summer months for drag racing.

Babe Ruth Field (33)

Babe Ruth Field is located at the northwest corner of Harris Street and Hall Avenue in the Myrtle town area. The field consists of a single baseball diamond and open field used for playing various outdoor sports.

Redwood Acres Fairgrounds (34)

Redwood Acres Fairgrounds is located southwest corner of Harris Street and Hall Avenue in the Myrtle town area. The fairgrounds consists of paved race track used for stock car racing; various multi-purpose buildings used for flea markets, shows, auctions, and live stock shows; a rodeo grounds; and inclosed and outdoor grandstands/bleachers. The fairgrounds is home to the Annual Redwood Acres Fair and Rodeo.

PROPOSED FACILITY IMPROVEMENTS

In August 1993, the City of Eureka Utilities Department published a document entitled *Waterfront Revitalization Program, Phase II Implementation*. The program report was prepared by the Eureka Harbor Commission in January 1993. The program established priorities among 32 specific waterfront project ideas, including the following recreational and open space improvements:

- Rehabilitation of the small boat basin
- Construction of a public berthing facility on the inner channel

- Development of a facility for rowing activities
- Completion of the Palco Marsh enhancement project
- Design and construction of Truesdale Street Vista Point
- Development of a wetland mitigation bank
- Development of a City coastal wetland management plan

The City of Eureka's Capital Improvement Program 1993-1998 also contains prospective improvements to the city's parks and recreation facilities. Table 8-2 summarizes the location and general nature of these improvements.

TABLE 8-2 PROPOSED RECREATION FACILITIES IMPROVEMENTS Eureka Capital Improvements Program	
Project Title	Description
Adaptation Building-Sequoia Park Zoo	Design and construct adaptation building with interior and exterior exhibits and pedestrian access extension from raised viewing area. Demolish small animal building and develop multi-purpose area.
Clara May Berry Park	Design and construct parklet adjacent to new main branch of the County library.
Duck Pond Road Safety Barriers	Install guardrail along duck pond road.
Golf Course Irrigation System	Construction of fully automated irrigation system for 120-acre 18-hole municipal golf course.
Golf Course Maintenance	1) Reconstruct existing sand traps; 2) enlarge teeing areas; 3) reconstruct greens; and 4) add sand traps.
Lundbar Hills Park	Provide park improvements (topsoil, landscaping, irrigation, drainage, sidewalks, lighting, fencing) to dedicated parkland.
Park Improvements	Miscellaneous improvements at Sequoia, Ross, Hammond, Highland, 20-30, Carson, and Cooper Gulch parks.
Sequoia Park Parking and Picnicking	1) Relocate entry for vehicular traffic to Madrone Avenue; and 2) design and construct four forest parking areas with adjacent individual picnic sites.
Sequoia Park Trails	Design and construct trail from playground, to meadow, to O Street including boardwalk, bridges, trailheads, signage, benches, and interpretive kiosk.
Sequoia Park Watershed Improvements	1) Improve water quality, enhance wetlands with buffer plantings, naturalize drainage dikes and enhance riparian corridor; and 2) Modify west edge of pond and relocate parking.
Softball Field Improvements	Reconstruct Harman, Kennedy, and Cooper Gulch infields, replace dugouts, pave entrance, access and under bleachers.
Zoo Improvements	Miscellaneous zoo improvements, including such items as reptile enclosure renovation and naturalization of mammal exhibits. Tamarin exhibit-small animal house. Enhancements to bear grotto, prairie dog, otter and primate exhibits. Paddock shelters including service and holding areas. Hoofstock transfer facilities.
Zoo Storm Drain	Replace approximately 500 feet of storm drain and construct 10 drainage inlets in vicinity of petting zoo, otter exhibit, waterfowl pond and western paddocks.
Waterfront Boardwalk	Design and construction of a waterfront boardwalk—B Street to West Plaza project. This pedestrian walkway along the waterfront would provide public access, active and passive recreational opportunities.
Source: 1993-1998 Capital Improvement Program	

RECREATION PROGRAMS

The City of Eureka Recreation Division is located at 1011 Waterfront Drive in the Adorni Recreation Center. The City of Eureka offers a variety of recreation activities for its residents, including:

- Sports leagues administered by the City, including men's and women's basketball, volleyball, softball, and youth basketball.
- Non-competitive sports for all ages, including tennis lessons at the Highland Park courts, swimming lessons and open swimming at the Eureka High School pool, aerobics classes at the Adorni Center, and public roller skating at the Municipal Auditorium.
- A seasonal activities program which includes numerous different specialty classes for youths, including a variety of art classes ranging from painting and crafts to mask-making and origami; classes such as interactive theater, computer fun, babysitting, gardening; and ninjutsu; and outdoor classes, including nature appreciation and field trips.

CULTURAL RESOURCES

Cultural resources include contemporary artistic activities as well as archaeological and historical resources. Artistic activities include performing arts, fine arts, and craft production. Archeological resources include building ruins, artifacts, and locations, which are evidence of the activities and values of indigenous people who inhabited the Planning Area prior to colonization by European Americans. Historic resources are buildings, structures, and sites that are evidence of the region's more recent past.

CONTEMPORARY ARTISTIC AND CULTURAL ACTIVITIES

Eureka has a thriving arts community. According to the U.S. Census Bureau, Eureka had the highest percentage of artists per capita in California and one of the highest in the Western United States in 1990. Accordingly, Eureka is gaining recognition as a center for artistic activities. This was most recently demonstrated when the National Endowment for the Arts (NEA) recognized Humboldt County as one of the premiere art centers among regions of comparable size. There is also broad community support for the arts in Humboldt County. According to a 1990 survey funded by the National Assembly of Local Arts Agencies, there are over 50 non-profit art agencies located in Humboldt County that support, represent, and promote artistic activity.

Eureka has eleven galleries and four museums that showcase the area's numerous local artists and artisans. There are also numerous local theater companies, including: North Coast Repertory Theatre, World Premiere Theatre, Ferndale Repertory, Pacific Art Center Theatre, HSU Theatre Arts Department (Arcata), Humboldt Light Opera, and Dell'Arte Players. Humboldt County is also host to numerous festivals occurring throughout the year. Some of the more popular events include:

- Bluegrass Festival
- Dixieland Jazz Festival
- North Coast Jazz Festival
- Annual Oyster Eating Contest
- Blessing of the Fleet
- Rhododendron Festival and Parade
- Great Cross Country Kinetic Sculpture Race
- Holy Ghost Festival
- Arcata Bay Oyster Festival
- Mid-Summer Scandinavian Festival
- Independence Day Celebration
- Orick Rodeo, Fortuna Rodeo

- Humboldt Bay Salmon Derby
- Annual Banana Slug Derby
- Pastels on the Plaza
- Loleta Antique Show
- Oktoberfest
- Various events combined to make up the "Coastal Christmas"

In 1992, Eureka was designated a Main Street City by the California Department of Commerce. Eureka was selected as a Main Street program, in part, to demonstrate how the arts can be used for economic development purposes. Main Street follows the model used by Taos and Santa Fe, New Mexico, Ashland, Oregon, and Sedona, Arizona, all communities in which the arts have stimulated economic development. Main Street, in conjunction with other local arts organizations, and the City of Eureka, is in the process of developing a cultural arts district plan. Ideas for the plan include development of an arts incubator, live-work space for artists, phantom galleries, and additional arts events.

ARCHAEOLOGICAL RESOURCES

This section on archeological resources includes an ethnographic overview and a discussion about the archeological background of the General Plan Planning Area.

Ethnographic Overview

Before settlement of the Eureka area by European Americans in the 1850s, the entire General Plan Planning Area was within the territory of the Wiyot Indians. The Wiyot occupied the coastal strip from Little River on the north to the Bear River Mountains on the south. The eastern boundary of Wiyot territory follows the crest of the first mountain range behind the coastal plain. The Wiyot at the time of Euro-American contact were divided into three principal groups, speaking a mutually intelligible language which differed markedly from the Athabascan languages to the east and south and the Yurok language to the north. Although Yurok and Wiyot are both considered by linguists to be Algonquin languages, they are not closely related; a speaker of Wiyot cannot understand the speech of a Yurok. The three subdivisions of the Wiyot were: 1) the Patawat, who lived in the villages on the lower Mad River; 2) the Wiki on Humboldt Bay; and 3) the Wiyot along the lower Eel River (Elsasser 1978). It is the name of the Eel River division which is now used exclusively in accounts pertaining to the entire group.

With a population numbering somewhere between a low estimate of 1,000 by Kroeber (1925) and a high estimate of 3,300 by Cook (1956), the Wiyot lived almost exclusively in villages along the protected shores of Humboldt Bay and near the mouths of the Eel and Mad Rivers. Nomland and Kroeber (1936:45) have pointed out that the Wiyot used the ocean very little for either food or travel. Almost all of their major settlements were located on still water where redwood dugout canoes could be used.

One of the more important aspects of Wiyot material culture was the redwood dugout canoe. It was made from a log hollowed by fire, and measured approximately 18 feet long by four feet wide. The redwood canoe provided access to aquatic food sources, and was a preferred method of travel between Wiyot villages on Humboldt Bay.

Villages consisted of dwellings which were rectangular in plan, made from split redwood planks. The planks were made by splitting fallen redwood trees with elk-horn wedges. The manufactured planks were from ten to sixteen feet long and two to five feet wide. The dwelling's sides were constructed by standing the redwood planks on edge and stacking them to eave height. Holes were burnt in the planks and they were tied together. The roof was supported by three to four beams. The door was a round hole, eighteen inches in diameter, located near a corner.

Associated with most Wiyot villages was a sweathouse, used by Wiyot men for sleeping, gambling, and ceremony. The sweathouse was semi-subterranean, about the same size as a house, and had its entry near the southwest corner (Loud 1918).

With these villages as their base, the Wiyot were able to hunt and gather a wide variety of plant and animal resources within their territory. Mollusks, sea lions, and stranded whales were among the ocean resources utilized by the Wiyot, while deer, elk, and acorns constituted the more important land resources. Perhaps the most important protein source for the Wiyot were the yearly anadromous fish runs on the Eel, Elk, and Mad Rivers and the major creeks. During these salmon and steelhead runs, the Wiyot were able to smoke and store enough fish to last through the winters when other food resources were not as abundant.

Wiyot fishing technology was elaborate and included the use of fishing weirs, single pointed harpoons, basketry traps, acute-angle hooks, double-toggle harpoons, fixed nets, lifting nets, scoop nets, lures, and torches (Kroeber and Barrett 1960). Because of this technology, the Wiyot were able to maximize the aquatic resources available and maintain one of the highest population densities in prehistoric northern California.

Other aspects of Wiyot material culture included beautiful twined basketry and woven tule mats. Men wore deerskin moccasins and hip-length leggings and, in cold weather, a fur robe about the shoulders. Women wore deerskin skirts with a fringed apron, and frequently wore a basketry hat. The Wiyot utilized an extensive flaked and ground-stone technology. Arrowheads, knives, and scrapers were made from chert and obsidian. Stone grinding implements were used to process grass seed, acorns, and other vegetable foods. Steatite was used for bowls and smoking pipes. Elk antler was used for spoons, shell money purses, basketry awls, and wood working wedges.

The Wiyot had established trade routes with a number of their neighboring groups. They provided dugout canoes and various foods to the Mattole to the south, who in turn traded tobacco, *Haliotis* shells, and other foodstuffs. In trade with the Yurok, the Wiyot supplied white deerskins and received iris fiber rope. The Wiyot also exported *Olivella* shells to the inland groups and dentalium beads to the Sinkyone (Davis 1974).

Wiyot contacts with white explorers and fur trappers prior to the California gold rush changed the character of northwestern California forever and led to the decimation and displacement of the Wiyot in the short course of 15 years. From 1850 to 1865, the territory of the Wiyot became the center for the largest concentration of Euro-Americans in California north of San Francisco. This was caused by the use of Humboldt Bay as a shipping point to the mines, the establishment of a redwood timber industry, and the homesteading of the Eel River and Arcata Bottoms for ranching and farming. The whites who came into Humboldt County in the 1850s and 1860s were not known for their tolerance toward cultures other than their own, and many came from areas to the east where Indians were feared and hated. Soon after the first white settlements were established on Humboldt Bay, the Wiyot population was decimated by Euro-American violence and by introduced diseases. Those who did not die from these causes were displaced from their villages and driven to distant reservations or marginal lands within the Humboldt Bay region. The Wiyot of the Humboldt Bay region were generally held in esteem for their morality, industry, and intelligence.

There are currently over 200 individuals of Wiyot descent associated with the Blue Lake, Rohnerville, and Table Bluff Reservations. Although there are apparently no fluent speakers of Wiyot left, many Wiyot still gather traditional foods and are greatly interested in maintaining aspects of traditional Wiyot culture. The Wiyot have requested that the City of Eureka turn over the title to the eastern portion of Indian Island to them. This area contains the former site of the Wiyot village of Dulawo't, which was a spiritual and habitation center of great importance to the Wiyot people.

Archaeological Background

A records search for the General Plan Planning Area was conducted at the Northwest Information Center of the California Archaeological Inventory, located at Sonoma State University. Relevant archaeological base maps, archaeological reports, ethnographic and historic materials, and current state and federal listings of registered historic properties were reviewed. This records search revealed that 47 archaeological sites had been recorded within the Planning Area boundaries. By State policy, the locations of these archaeological sites and the record forms describing them are considered sensitive documents and are not available to the general public. Dozens of significant archaeological sites have been looted or vandalized within the Planning Area by persons who did not know or did not care about the important heritage and research potential these sites represented.

Most of the archaeological sites on record at the Northwest Information Center had been listed initially by Llewellyn Loud in his *Ethnogeography and Archaeology of Wiyot Territory*, published in 1918. Using Wiyot and white pioneer informants and field surveys, Loud documented 172 sites within Wiyot territory. Loud also conducted an archaeological excavation within the Wiyot village of Dulawo't (CA-HUM-67), located within the Planning Area on the eastern end of Indian Island. This excavation revealed the presence of fire hearths, house floors, numerous artifacts, and human burials. This was the first scientific archaeological excavation within Humboldt County. Subsequent excavations at CA-HUM-67 were undertaken by avocationalists H.H. Stuart of Eureka, followed later by Thomas Hannah of Eureka's Clarke Museum, and by other unidentified persons. Robert Heizer and Albert Elsasser of the University of California at Berkeley also did some limited work at the site in the late 1940s. Radiocarbon dates of 900 A.D. and 880 A.D. from the base of the archaeological deposit imply continuous use by the Wiyot, dating from at least 1,000 years ago.

The ethnographic significance of CA-HUM-67 as a major village site and as the scene of important religious dances was described by Nomland and Kroeber (1936:42). Loud (1918) presented an account of the 1860 massacre by vicious Euro-Americans of the Wiyot living at Dulawo't. This tragic event, although similar to numerous other massacres of the same period, was distinguished by being reported in several national newspapers. Because of the prehistoric and historic significance of CA-HUM-67, the site was designated a State Historic Landmark. A bronze plaque briefly describing the site was placed on Woodley Island overlooking Indian Island.

While a number of recent archaeological surveys have been conducted in the Humboldt Bay region in response to cultural resource protection laws, very little archaeological work has been done in the Eureka area since the pioneering study by Loud. Although Loud did a remarkably detailed survey in the short time he was in Humboldt County, and he had the advantage of working with Wiyot informants who could remember what the cultural landscape was like before the Euro-Americans came, there are several prehistoric sites which have been recorded in Wiyot territory which Loud did not mention, and there are undoubtedly many more which are as yet unrecorded. The most likely locations for unrecorded sites lie in the vicinities of recorded sites, within a region along the edge of Humboldt Bay, but it is possible that significant resources could occur anywhere in the Planning Area. Figure 8-2 shows areas of greatest archaeological sensitivity in the General Plan Planning Area.

Many significant prehistoric and historic archaeological sites have been disturbed or destroyed by construction work associated with the development of Eureka and neighboring communities. Several Wiyot village sites and cemeteries have been obliterated during the construction of public and private developments within the Planning Area. The City of Eureka and Humboldt County Planning Departments, which have jurisdiction over development within the Planning Area, are legally responsible for protecting significant cultural resources under the California Environmental Quality Act.

HISTORICAL RESOURCES

Historic resources within the General Plan Planning Area are the tangible evidence of the region's past and a heritage to be valued by this and future generations. Beginning with Euro-American settlement more than 140 years ago, the region's history has unfolded in phases, orchestrated by its natural resources and by human aspirations for power, wealth, and comfort. Reflections of that history are found in the built environment and range from the most modest vernacular structures to the finest Victorians, from settlement to contemporary architecture, from single examples to groups to entire neighborhoods, and from rural settings to urban, and include private residential and commercial architecture, public sites, intact communities, and the linkages between them. These resources are gifts from previous generations to the present and, like all gifts, should be appreciated and passed on to future generations, along with a contemporary legacy.

This section includes an historic overview, a description of historic communities in the General Plan Planning Area, and a discussion of Eureka's historic resources.

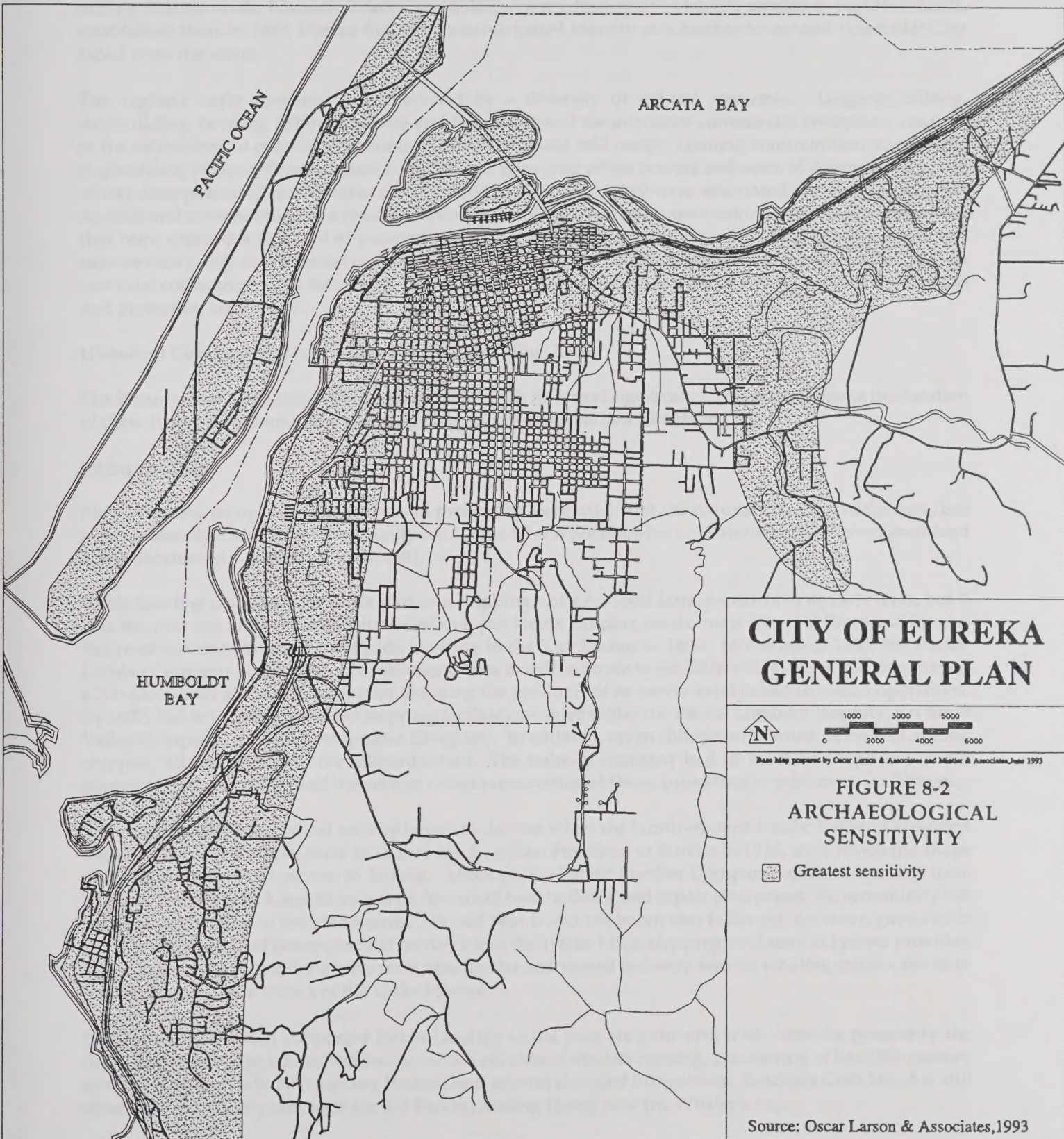
Historic Overview

Historical resources are sites or artifacts of local occupancy since the colonization by Euro-Americans; it is generally accepted that historical significance begins to accumulate when the age of an artifact or site exceeds 50 years. Historical significance, however, has a context component which is independent of age, especially in the General Plan Planning Area, where the total historical record is less than 200 years and the entire historical settlement period is less than 150 years. Within this context, sites and artifacts less than 50 years old do have historical merit.

Historical resources are often identified in architectural contexts, since these contexts changed through time. As new buildings are constructed, they reflect the prevailing architectural pattern in the American culture as a whole. Occasionally one or more buildings will reflect a particular architectural trend that was uncommon or unique even at the time of construction. These architectural styles reflect a sequence of events, and the city's past can be interpreted in the individual styles and the mixtures of styles. In addition, many buildings can be attributed to specific historical individuals or events, for which written documentation exists in property registers and newspaper columns.

The Humboldt Bay region was settled late in this country's westward expansion, 230 years after the Massachusetts colonists landed at Plymouth and nearly a half century after the Lewis and Clark overland expedition reached the Pacific coast. Exploration of the northern California coastline by the Spanish resulted in a landing by Bruno Hecata and Juan Francisco de Bodega y Cuadra at Trinidad in 1775, followed in 1793 by the intrepid Captain Vancouver. But "discovery" of Humboldt Bay was left to an American, Jonathan Winship, employed by the Russian-American Company, which commissioned Winship in 1806 to undertake a sea otter expedition along the Northern California coast.

It was another 44 years before Euro-Americans arrived to establish permanent settlements. In early November 1849, a party of seven men, led by Dr. Josiah Gregg, left the mining district on the Trinity River near Weaverville for an overland journey in search of Trinidad Bay, which they mistakenly thought was the outlet of the Trinity River. Gregg's intent was to locate a coastal port for supplying the needs of the interior mining camps, which relied on difficult land connections with the Sacramento Valley. After an arduous journey of 99 days, the party reached the coast near Little River and eventually the shores of Humboldt Bay, where they spent Christmas 1849, encamped two hundred yards from what is now the Arcata Plaza. Following the Indian trail around the edge of the bay (the Old Arcata Road corridor), the party camped on the bluff above the bay (Bucksport). Near the mouth of Van Duzen River, they separated into two groups. In time, the Wood party reached Sonoma and the Gregg party (minus Dr. Gregg, who died near Clear Lake) arrived in the Sacramento Valley.



In April 1850, the first Euro-American settlements were established at Humboldt City (Buhne's Point), Bucksports, Eureka, and Union (Arcata). Union quickly took the lead as the supply center for the interior mining districts on the Klamath, Trinity, and Salmon rivers; Bucksport's viability resided in Fort Humboldt, established there in 1853; Eureka forged an unanticipated identity as a lumber town; and Humboldt City faded from the scene.

The region's early economy was sustained by a diversity of natural resources. Logging, milling, shipbuilding, farming, fishing, packing and freighting, and the attendant commercial enterprises resulted in the establishment of tailored communities—logging and mill camps, farming communities, stage stops, shipbuilding villages. Some of these communities grew into urban centers and seats of government, while others disappeared as the resource and/or activity with which they were associated declined or changed. Agricultural communities have remained the most stable of those early associations, but many communities that once enjoyed a measure of prosperity because of timber, fishing, or railroading have declined and survive today only as residential communities, whose livelihood is found elsewhere. It is within both urban and rural communities that the historic resources of the Planning Area are found and for which identification and protection are needed.

Historical Communities in the General Plan Planning Area

The Planning Area includes several communities with historical significance. Figure 8-3 shows the location of these historical communities and the following paragraphs describe them.

Fields Landing

Fields Landing enjoyed several periods of prosperity associated with the natural resources of the area, but is now basically a residential community for people who work elsewhere. Waterman Field purchased land at this location in 1862 and again in 1881.

Fields Landing may have gotten its start as a shipping point for local farm products in its early days, but it was the railroad and the lumber it carried that put Fields Landing on the map. The Eel River and Eureka Railroad was constructed from Fields Landing to the Van Duzen in 1883. In the fall of 1885, the Pacific Lumber Company completed rail connections from its mill in Scotia to the ER&ERR at Alton, and constructed a 700-foot wharf at Fields Landing for shipping the products of its newly-established redwood operations. By 1907, Fields Landing provided shipping facilities for three mills: the Pacific Lumber Company, Eel River Valley Company, and the Metropolitan Company. In addition, seven shingle mills south of Fields Landing shipped "all their cut" over the railroad wharf. The railroad company had its machine shops and round houses at Fields Landing and the section crews were stationed there, providing employment for 20 men.

The community's commercial activity began to decline when the Northwestern Pacific Railroad absorbed the ER&ERR and the lines were built through from San Francisco to Eureka in 1914, after which the shops and headquarters were moved to Eureka. Although the Pacific Lumber Company continued to ship from its Fields Landing dock and there were a few small boat building and repair enterprises, the community felt the shift in activities to the urban center. World War II and the boom that followed, however, gave Fields Landing an infusion of commerce that carried it into the 1960s. Mills, shipping, and sea food plants provided major employment, but the town's most spectacular and famed industry was its whaling station, the only one of its kind in the waters of the United States.

The big industries that supported Fields Landing in the past are gone and with them the prosperity the community once enjoyed. Its residential section consists of modest housing, a scattering of late 19th century structures, some early 20th century houses, and several shingled bungalows. Botchie's Crab Stand is still there after sixty-five years, as is the old Fields Landing Hotel, now the Whaler's Inn.

Buhne's Point/King Salmon Resort

Buhne's Point is located opposite the entrance to Humboldt Bay and was once a prominent red bluff which, from a point offshore, could have made the north and south spits appear continuous, thus delaying discovery of the outlet. It was named for H.H. Buhne, second officer of the *Laura Virginia*, whose company established the bay's first settlement, known as Humboldt City, on the point in April 1850. Humboldt City disappeared, but Buhne developed a dairy ranch here and the land remained undeveloped until after World War II. In July 1948 a subdivision map for the King Salmon Resort was approved.

The community's setting, at the edge of the bay, directly across from its entrance, provides a fishing-village atmosphere with unique views of the breakers rolling along the jetties, the Coast Guard Station, and the north and south spits. An erosion control project, undertaken in the early 1980s, currently protects King Salmon from the force of the waves washing in from the entrance. Adjacent to the community is the PG&E Humboldt Bay Power Plant, whose conventional units were dedicated in 1956, with the nuclear unit added in 1963.

King Salmon still caters to summer visitors at Johnny's and EZ Landing RV and mobile home parks, and there is a charter boat business, marine supply store, and sea food restaurant for their accommodation. A permanent population lives in the subdivision, consisting of small, one-story houses, and the mobile home parks. There are a few more substantial, two-story houses that have been constructed in later years, but the built environment is modest.

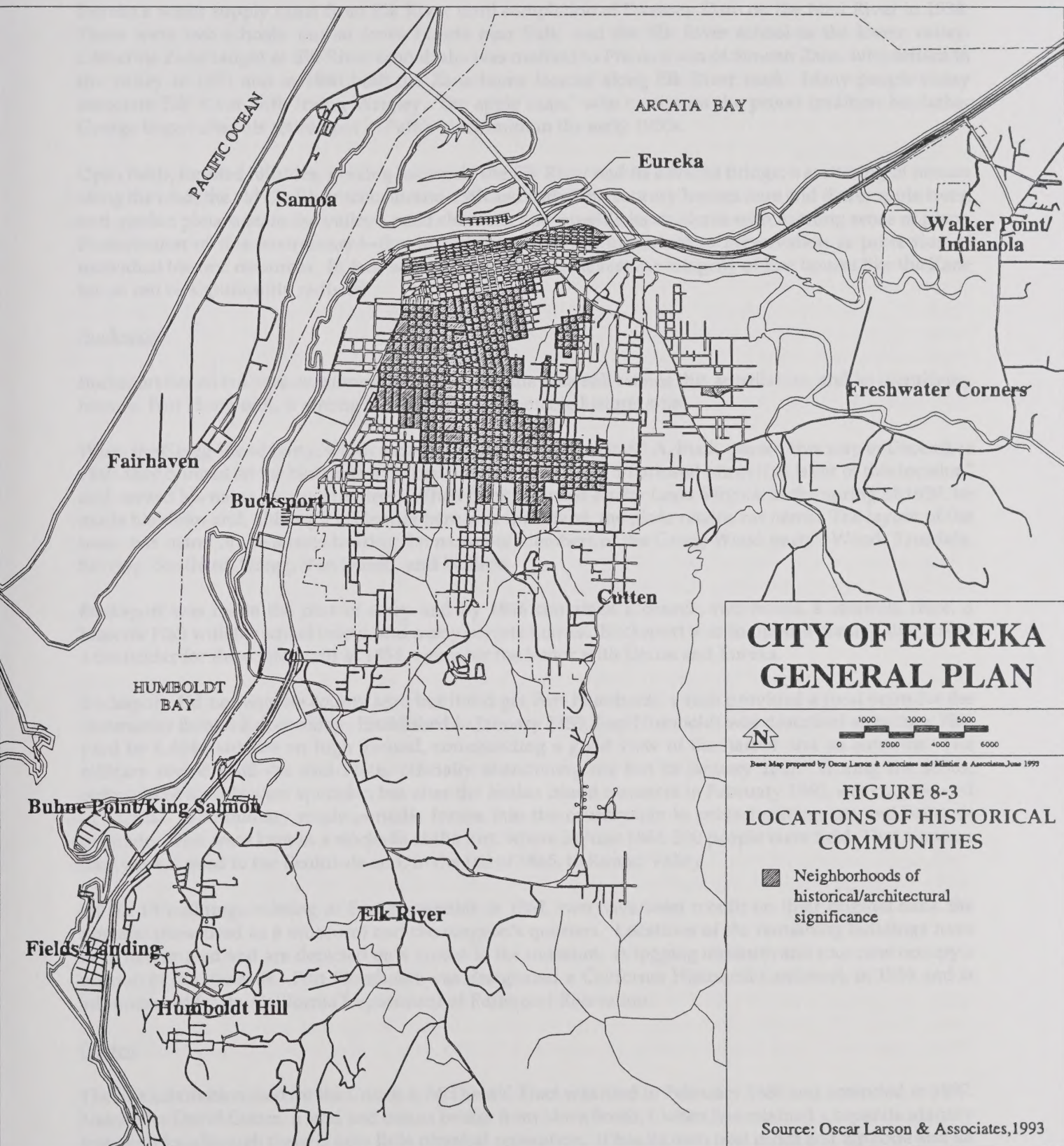
Humboldt Hill

Although some residential construction occurred along the lower end of the road near Spruce Point prior to World War II, the major subdivisions on the hill began after the war. In the fall of 1948, it was announced that 150 new homes were to be built on a 50-acre tract. Humboldt Hill was further subdivided and developed in the 1950s. The 86-unit "trailer park" (Humboldt Bay Mobile Estates) near Spruce Point was constructed in 1965. The Eureka Community Plan, which has been under development by the Humboldt County Planning Department in conjunction with the Citizens Advisory Committee, proposes continued residential development in the Humboldt Hill area, with 400 new units planned for the 100-acre Barry Tract south of the existing development.

Although the early post-war subdivisions on Humboldt Hill cannot be considered historic resources in 1993, they are nonetheless part of the social and economic history of this region. Tracts or additions were subdivided in Eureka for housing soon after settlement, but the kind of subdivisions represented by those on Humboldt Hill, where a single developer built large numbers of houses for installment buying, was a previously unrecorded land use.

Elk River

The Elk River Valley is one of the oldest settlement areas in Humboldt County, and was one of the first redwood areas to be logged. The virgin timber was some of the largest-diameter trees in the region. Elk River produced large volumes, even before Noah Falk arrived on the scene; an 1881 article noted that five rafts of logs consisting of 1.2 million feet had arrived in Eureka from Elk River. The following year, the Elk River Lumber Company was incorporated, the principal shareholders being Noah Falk, C.G. Stafford, and J.C. Hawley. The mill and a complete town, including homes, bunkhouses, general store, cookhouse, blacksmith shop, and community hall and rail connections with Bucksports were all in place by 1884 when operations began in that legendary place called Falk. The mill was rebuilt in the summer of 1890 after a disastrous fire leveled the mill. In 1920, Falk sold out and the mill operated under the new ownership until 1930, and then somewhat intermittently through the Depression. By 1940, only a dozen people were left in the once thriving community.



Logging at the head of the valley, and dairy and stock ranching at the bottom, provided livings for many families. Golden State had a creamery in the lower valley until 1933, and there was also a cheese factory. Eureka's water supply came from Elk River until completion of Sweasey Dam on the Mad River in 1938. There were two schools, one at Jones Prairie near Falk, and the Elk River school in the lower valley. Catherine Zane taught at Elk River school; she was married to Frank, a son of Simeon Zane, who settled in the valley in 1871 and in 1880 built the Zane home located along Elk River road. Many people today associate Elk River with Irving Wrigley, "the apple man," who carries on the proud tradition his father George began after his retirement as Falk's blacksmith in the early 1900s.

Open fields, forested hillsides, grazing livestock, the Elk River and its covered bridge, a scattering of houses along the road, the old Elk River schoolhouse, 19th and early 20th century houses here and there, apple trees, and garden plots sustain the valley's rural character and provide its residents with a strong sense of place. Preservation of this environment—this historic context—is as important to preservation as protection of individual historic resources. In fact, without that context, the historic integrity of fine houses like the Zane house can be significantly reduced.

Bucksport

Bucksport has all but been consumed by Eureka, but the area still retains this appellation, and its identifying feature, Fort Humboldt, is among the region's most notable historic sites.

When the Gregg-Wood party, which included New York native David A. Buck, passed this way in December 1849, they camped on the bluff above the bay. At that time, Buck "expressed himself in favor of this location" and carved his name on a nearby tree. When Buck returned on the *Laura Virginia* in the spring of 1850, he made his claim and, although his tenure here was shortlived, the place retains his name. The layout of the town has many of the streets bearing the names of members of the Gregg-Wood party: Wood, Trusdale, Sebring, Southard, Gregg, Van Duzen, and Willson.

Bucksport was made the port of entry and by 1856 contained a church, two hotels, a sawmill, store, a Masonic Hall with the school below, and many private homes. Bucksport was so up-and-coming that it was a contender for the county seat in 1854, vying for the honor with Union and Eureka.

Bucksport did not win the county seat, but it did get Fort Humboldt, which provided a focal point for the community then as it does today. Established in January 1853, Fort Humboldt was described as being a 700-yard by 4,444-yard site on high ground, commanding a good view of the harbor and its entrance. The military stayed until the mid-1860s, officially abandoning the fort in January 1867. During the 1850s, outbreaks of trouble were sporadic, but after the Indian Island massacre in February 1860, war commenced in earnest. The military made periodic forays into the countryside to protect settlements and bring in prisoners, who were kept in a stockade at the fort, where in June 1864, 500 people were held. That summer they were moved to the Peninsula and, in the fall of 1865, to Round Valley.

Of the 18 buildings existing at Fort Humboldt in 1861, two have been rebuilt on their original sites, the hospital (now used as a museum) and the surgeon's quarters. Locations of the remaining buildings have been determined and are depicted on a layout in the museum. A logging museum and tour now occupy a portion of the grounds. Fort Humboldt was designated a California Historical Landmark in 1956 and is administered by the California Department of Parks and Recreation.

Cutten

The first subdivision map for the Cutten & McDonald Tract was filed in February 1888 and amended in 1897. Named for David Cutten, a land and timber broker from Nova Scotia, Cutten has retained a separate identity from Eureka, although there is now little physical separation. It has its own post office and zip code and an

elementary school system, along with some commercial development. Rapid growth is, however, changing its distinct identity.

For the most part, the houses in Cutten appear to be post-war construction, with most of the development occurring within the past twenty years. There is, however, some bungalow housing in the area, indicating construction from about 1915 to 1930. One 19th century house, a vernacular "I" house, is located at the corner of Walnut and Cypress.

Freshwater Corners

Located where Myrtle Avenue and Old Arcata Road meet with the Freshwater-Kneeland Road, Freshwater Corners is identified today by the 3 Corners Grocery, but the site was once occupied by a large hotel/saloon and dance hall, built in the 1870s. The hall was the little community's social center, providing space for political gatherings, school graduation exercises, Sunday school, and "preachings."

Early logging near Freshwater Corners relied on high winter stream flows to carry the logs to tide water, where they were rafted to Eureka mills. The vagaries of rainfall sometimes resulted in little movement of logs and idle mills, so alternative means of transport were needed. Railroads were the answer and the first built-up Freshwater was constructed in 1880 by South Bay Railroad and Land Co., owned by H.H. Buhne, D.R. Jones, J.W. Henderson, and the Paige Brothers.

The following year, the seven-mile-long railroad moved 14 million feet of "mammoth logs from the hillsides and gulches" through Freshwater Corners to tidewater and predictions were that improvements in 1882 would raise that number to 20 million feet. The Excelsior Lumber Company, incorporated in the spring of 1886, became the primary logging show on Freshwater which, at its peak, included three logging camps of 80 to 100 men per camp. During the panic of 1893, Excelsior closed down its Freshwater operations, which remained closed until Pacific Lumber Company took over in the early 1900s. The company built its shops and houses in the lower valley near Freshwater Corners. Palco operated on Freshwater for about 40 years, removing the railroad tracks, which crossed the Old Arcata Road at Freshwater Corners, and selling off the buildings when it left in 1941.

Freshwater Corners must have enjoyed some boom times during more than 60 years of intense logging activity on Freshwater. The saloons (there were two) and the dance hall probably saw some lively nights, but those days are gone with only historical accounts and some fine 19th century houses to recall them.

Walker's Point/Indianola

Located mid-point between Freshwater Corners and Bayside, these two areas include Old Arcata, Ole Hansen, Indianola, and Walker Point roads. Scattered throughout are post-war and contemporary houses and mobile home parks, but the turn-of-the-century character of the area is maintained by its late 19th and early 20th century houses and open space, particularly evident along the Ole Hansen Road. Development, such as that occurring on Walker Point Road, however, threatens that rural, historic character.

Charles Walker owned 250 acres in the Indianola area, including a 160-acre piece along Old Arcata Road from Fay Slough to the Indianola Cutoff. Included in this parcel is Walker's Point, a north-south trending ridge that overlooks Fay Slough. The Walker family, including 15-year-old George, moved to their holdings here about 1878 and into their newly-constructed house. When George and his wife, Amanda Martin Walker, celebrated their Golden Wedding Anniversary in 1935, they were still living in the old home.

Oley Christian Hansen came from Denmark to Humboldt County sometime before 1882 and bought land eventually totaling 700 acres in this area. The Hansen Mill, located at the end of the Ole Hansen Road, produced shingles, which were transported by wagon to Walker's Landing on Fay Slough for shipment to Eureka. In 1892, Hansen had the 16-lot Hansen Tract surveyed and opened for purchase. There are a

number of turn-of-the-century houses along Ole Hansen Road in a setting which includes old barns, orchards, fields, and livestock, all of which preserve the rural, historic context of this community.

The classic settlement of Dutch Flat was renamed by the postal authorities in Washington when they granted the post office—Indianola—to the community in 1900. A number of names were suggested by local residents, so it remained a mystery why Indianola was chosen. At that time in its life, Indianola had a store operated by N. Zarariah in association with J.M. Marble, who also ran a blacksmithing and horse-shoeing shop, and a "cobbling" establishment run by A.T. Bergon, a "late arrival." Indianola still has a store, but no post office, a large trucking business, and residences all along the road. Houses are a continuum of styles dating from the late 19th century to contemporary construction and mobile homes. Notable examples of 19th century and the first quarter of the 20th are found throughout the area.

Samoa

Located on the Peninsula across the bay from Eureka, Samoa was surveyed and subdivided in 1891. In June 1892, incorporation papers for the Samoa Land and Improvement Company of Eureka were filed. The object of the corporation was to "buy and sell real estate, construct and maintain ferries, wharves, etc., and pleasure grounds, park, and bathing establishment". The 10,000 shares of stock were held by Daniel Murphy, David Cutten, R.W. Rideout, G.R. Gibson, S.I. Allard, George Hiller, and T.W. Power. Dan Murphy built the baths, and a few cottages were constructed, but before the resort really got off the ground, John Vance took over, building his big sawmill at Samoa in 1893. The railroad from his timber tract on Mad River at Essex was completed in 1896, and by June of that year was delivering 130,000 feet to the mill each day. At this same time, a fancier version of the Samoa subdivision map was filed with the names of "prominent business men and capitalists," and even a couple of U.S. Presidents: Vance, Murphy, Murray, Cleveland, Harrison, Soule, Geary, Allard, Gibson, Power, Cutten, Rideout, and Hiller.

With the establishment of Vance's mill, Samoa took on a new character as a company town, although the Samoa Baths and New Era Park with its dance pavilion perpetuated the original resort idea for a time. But for the past century, Samoa has been a mill town, first under Vance, then under A.B. Hammond, who purchased the Vance interests in 1900 and the Little River Redwood Company in 1931, followed by Georgia Pacific in 1956, and finally Louisiana Pacific in 1973.

By 1923 Samoa had a resident population of about 400, and there was a daily influx of workers who came by ferry from Eureka. The train from Little River brought down redwood logs to keep the mill operating and many men employed. With the construction of Ruth Dam in 1960, two new "manufacturing enterprises" on the Peninsula were assured as Georgia Pacific Corporation and Simpson Redwood Company contracted to purchase water for their pulp mills.

Without question, Samoa is historically and architecturally significant. It represents a century of continual residency by workers employed by four different corporations, all of which were associated with the milling of redwood lumber. The buildings, including the world-famous Cookhouse, store/cafe, gas station, and a wonderful array of houses, are historic resources deserving of recognition and protection. These buildings are notable as individual examples of housing styles; far more significant, however, is their value as a community, whose architectural integrity and historic context have been maintained unimpaired. The entire town is, unquestionably, worthy of recognition on the National Register of Historic Places. It is an architectural gem, set in an environment and historic context that makes it shine.

Fairhaven

Transplants from Connecticut, George and Nahum Fay were on Humboldt Bay by 1854, located first at Bucksport but establishing themselves as shipbuilders on the Peninsula by 1862. In 1867 they built the first shingle mill at Fairhaven, named for their hometown in Connecticut. They erected a second "mammoth" mill

in 1874-75, which burned in 1882 and was rebuilt the following year. Fairhaven was surveyed and divided into lots and streets, designated Fay Avenue, Gass, Ocean, Comet, and Bendixsen in 1874.

The Hans Bendixsen shipyard at Fairhaven launched its first schooner in 1874, and for the next quarter of a century crafted some of the finest ships on the Pacific coast. In 1917 James Rolph purchased the shipyards, and during the war they were the scene of intense activity (Fairhaven even became known as Rolph for a brief time), all of which terminated shortly after the war's end.

With the construction of the Simpson pulp mill in the early 1960s, Fairhaven became the site of another industrial enterprise; that, too, has terminated within the past year. Fairhaven's beautiful setting has long been appreciated, but so, also, was its potential for industrial activities, which have come and gone, leaving in their wake a community with lots of history, but little tangible evidence of that past. Fairhaven's built environment is modest with only a couple of examples of turn-of-the-century or bungalow styles. The school, which appears to be an early 20th century structure, is intact and occupied by the fire district.

The Government Reservation

This southern point of the Peninsula has been the location of government facilities for almost 137 years, beginning with the light house and continuing today with U.S. Coast Guard Station facilities and navigational aids.

The 1856 lighthouse building's location made it extremely vulnerable to the elements, and in 1892 Table Bluff became the site of a light facility. The Humboldt Bay Life Saving Station was slow in coming and despite the first announcement that it was to be constructed in 1875, it wasn't until December 1878 that it became operational. A fog signal station and keepers' cottages were constructed in 1908. Today's Coast Guard Station, placed on the National Register of Historic Places in 1977, was constructed in 1936. During World War II, the reservation and much of the Peninsula west of Fairhaven was under military control, and was the scene of much activity, including a blimp facility, sea plane base, and beach patrols. There is a significant history associated with the Government Reservation, including great tales of daring sea rescues, misadventures like the *Milwaukee*, numerous ship wrecks, jetty construction, the introduction of exotic vegetation for sand stabilization, World War II activities, and more.

Eureka

Gold sparked the search for Humboldt Bay, but it was timber that sustained the fire; Eureka, although not initially the leading settlement, soon became the preeminent town of the region. The site chosen for Eureka by James T. Ryan and others in May 1850 was a piece of open land above the marsh and below the timber, between B and F Streets and between the waterfront and 3rd Street. The collection of buildings erected at that time and the condition of the "streets" during the winter months most certainly left something to be desired. It wasn't long, however, before timber, capital, and good old-fashioned American ingenuity had Eureka bustling with activity. The nearest timber was cut first, moved by the "freshets" to tidewater and rafted to the mills. As the timber receded and the difficulty of water movement was acknowledged, trains brought the logs to tidewater and eventually all the way into the mills. Eureka's export of timber products for the year ending March 31, 1868, totaled 20 million feet of lumber and 4 million shingles; a year later, the four big mills in Eureka—Dolbeer & Carson; Jones, Kentfield and Buhne; John Vance; and J.R. Duff & Co.—exported almost 31 million feet of lumber.

Eureka's growth in residential and commercial buildings matched the lumber industry's growth. Prosperity and expansion not only meant growth in the housing stock, but also the construction of more substantial homes, whose owners opted for something more than simply shelter. Vernacular housing and classically-styled settlement houses came first, followed by a Victorian period that produced numerous outstanding examples. But so, too, did the turn-of-the-century transitional period which blended the past with the future, and the wonderfully-imaginative Craftsman period, which produced California's own

bungalow house. Post-World War II developments are only a few years shy of the fifty-year threshold for consideration as a historical resource, and their value as part of the community's social, economic, and architectural history should be recognized.

Eureka is replete with outstanding individual examples of architectural styles. Far more remarkable, however, are the architecturally-intact neighborhoods that interface with each other to create an entire community of historic resources. Individual examples are important, but it is the total that maintains Eureka's historic context and provides an architectural character few places can match.

Claiming property and then selling it off in pieces were activities Eureka's first comers engaged in with horse-trading enthusiasm. People bought single lots and erected houses, either by their own sweat or by that of a hired carpenter, who brought along a small crew. Sometimes a man bought an entire block and after construction of his house, subdivided the remainder. But there were others in the Eureka community, one notable example being Dr. Jonathan Clark, who subdivided large tracts of land into lots and streets. Many of Eureka's important residential areas developed in these early additions.

Others followed Clark's lead and there are numerous additions, tracts, and subdivisions throughout Eureka. Construction by individuals was probably the norm. The idea of developer-constructed houses in subdivided tracts came into its own after World War II, although there were tentative rumbles in that direction before the twenties and, in fact, there were some very early "tracts," usually a row of similar-style houses built for one individual.

Eureka was an up-and-coming place in the twenties. It had a population of 14,000, with an area of about 12 square miles on which to build the "future metropolis of northern California." At that time, however, the thickly settled district covered only a square mile, running back from the bay shore a mile and a half. But it was a modern place with paved streets, gas and electric lights, an electric car service, a municipal water system, a polytechnic high school in a new building, extensive manufacturing plants, a ferry system to the Peninsula, five lines of railroad, a magnificent harbor, and rail connections to the outside world.

The Depression may have slowed construction of residences, but there was, nonetheless, continual building throughout the thirties up to the war years. Building permits in 1935, for example, indicated that four, five, and six room houses were being built for \$2,000 and less. But more substantial houses were also being constructed; the Marc Morrison house at the end of M Street was priced at almost \$10,000 in 1935 and the City's Municipal Auditorium was built for \$125,000 the following year.

Little residential construction occurred during the war years; in fact, not a single subdivision map was filed after 1930 and before 1947. But then the flood gates opened and Eureka experienced a building boom to match the boom going on in the woods and the mills. Building and construction hit a new high in 1948 with more than five million dollars expended, over a million dollars more than any previous year. Housing for returning veterans and new workers was in great demand and two well-known developers responded, Chester Spiering of Blakeslee-Spiering Construction Co. and Ernest Pierson of Pierson Homes.

By July 1948, Spiering had completed more than 60 houses in Redwood Gardens and 28 out of 50 in Eastwood Slopes (17th, 18th, R, and S Streets). Spiering offered "conventional type, spacious homes" for \$6,000, with \$1,200 down and monthly payments of \$38. A full-page ad with a photograph of Blakeslee-Spiering's "Dream House" in Eastwood Slopes appeared in the *Humboldt Times*; that "Dream House" is easily recognized today at the corner of 18th and R Streets, a side-gable house with paired, gabled dormers, central door, and large front windows.

By 1954, Pierson had built Eastwood Heights and Pacific Heights, business buildings, and apartments. The company employed 58 men who worked on the houses in crews, creating pride of workmanship.

Housing tracts built during that post-war boom expanded Eureka's residential areas on both the south and east, creating entire neighborhoods of similar-style houses within a matter of months. That expansion has continued and is forecast for the future. The Eureka Community Plan, developed over a period of three years by a Citizens Advisory Committee, envisions the development of almost 2,000 new residential units in the unincorporated areas south and east of Eureka.

Eureka's Historic Resources

Eureka's older neighborhoods are an integration of styles and periods and social and economic circumstances. A single street may include a settlement hall-and-parlor house, a lovely Victorian cottage, and a fine turn-of-the-century residence, and around the corner could be a row of Craftsman period bungalows. This integration represents construction "infilling," but it also expresses a very democratic community which readily integrated people regardless of social or economic condition. The influential and monied built fine homes next door to very modest, working-class residences. Unlike later subdivisions where all the houses were built within the same time period and are similar in style and cost, Eureka's early additions include houses of different construction periods, different styles, and vastly different costs. A similar integration of socio-economic conditions and ethnic groups exists today in these older neighborhoods.

While there are certainly single examples of notable architecture in Eureka, and areas of particular significance, it is the city's entire older core that is historic. In some neighborhoods, fine architecture is interspersed among more modest housing which, nonetheless, is integral to the setting and provides the context for the architecturally-significant houses. In other neighborhoods, street after street is lined with not just good, but outstanding examples of architectural periods and styles. The beauty of these streets—fine architecture in immaculate condition and well-kept landscaping—is truly inspiring. Other areas, generally on the edges of this core, contain more contemporary styles or housing without style. Within these areas, however, are found single examples of significant periods and styles—delightful surprises among recent construction. Housing tracts developed after World War II also contribute to Eureka's architectural heritage.

Research on individual structures, groups, and neighborhoods, and site-specific mapping, are the only creditable ways of identifying historic resources. Absent that level of information, it will be necessary to rely on existing documentation and coarse-filter mapping. These sources provide general guidance in planning for historic preservation and are valuable as indications of just how rich and extensive Eureka's historic resources are. Only through research and evaluation by qualified cultural resource professionals can there be confidence that all of these valuable resources, individually and collectively, are identified for protection.

The best existing documentation is the Eureka Heritage Society survey of 10,000 buildings; the Society's publication *Eureka, An Architectural View*; the map, color-coded to show National Register eligible, background, and historic background structures; and the Society's recommendations for National Register Districts. The 13 districts, listed on pages 237-241 in *Eureka, An Architectural View*, were identified by the evaluators as distinguishable by similarity of style, uniqueness of type, builder or architect, or significant to the history and growth of Eureka. The Society's survey should in no way be considered the final word on historic resources in Eureka. Although an excellent base upon which to build a complete inventory, the survey is limited in several ways: 1) it did not include all the developed areas of the city, 2) it was conducted in the early 1970s, and 3) it applied a more narrow set of criteria for significance than would be used today, when context, groups, and vernacular architecture are more fully appreciated.

The Eureka Old Town Historic District documented 215 buildings within a 24-block area between C and N Streets and between the waterfront and 3rd Streets. Of this number 161 were considered contributing structures and are now listed on the National Register of Historic Places. The remaining 54 buildings, although not eligible for listing, are still important to the Historic District's historic context.

Although the first plat map for the Eddy Tract, located roughly between O and Y Streets and between 4th and 1st Streets, was not filed until 1876 (a second map enlarging the original area was filed in 1885), this area appears to encompass the first intensively-developed housing in Eureka. Presently there are scattered light industrial uses, two mobile home parks, and several new apartment complexes in the area, but there are also numerous examples of early settlement-period houses and 19th century vernacular houses. Many of these structures are in very bad repair, but they are invaluable as examples of early styles, for the information that they can yield on construction materials and methods, and as significant contributors to Eureka's historic and architectural heritage.

Clark's Addition, filed in 1866, included the area between Cedar and Washington Streets and between Union and C Streets. The Addition was enlarged in 1873 to add 14th through Sonoma on the south. A second enlargement in 1883 included the area between Grotto and 15th and between California and F Streets; also, the area between Hawthorne and Sonoma Streets and between Broadway and California. Coarse filter mapping identified an area of significance bounded by Washington on the north, C on the east, Broadway and Fairfield on the west, and two different boundaries—Buhne and Henderson—on the south. This area contains some of the most significant single examples of historic architecture in the city, and cohesive neighborhoods of incredible diversity. The diversity is evident in the range of styles, construction periods, and pretentiousness of the houses; age and a high degree of architectural integrity hold this diversity together in historically-significant neighborhoods.

The area between Washington and 14th and between Albee and C Streets, roughly Clark's 1866 Addition, was mapped house by house. With the exception of the Jefferson School lot and one block on Albee Street, most of the 25 blocks in this area consists almost entirely of historic structures. The range of architecture includes settlement and folk vernacular, Victorian cottages and high styles, turn-of-the-century Neoclassical, and Craftsman period bungalows and shingle style houses.

The enlarged area, as it was constructed, represented a truly amazing integration of styles, periods, and socio-economic conditions; today that integration is still evident, not only in the built environment but also socially and ethnically. These neighborhoods, while certainly not the "fanciest" or the best kept, are extremely valuable for both their social and architectural history. Preserving the integrity of these neighborhoods and appropriately restoring individual structures will contribute significantly to the quality of life for neighborhood residents and to the historic and aesthetic character of the city.

The area encompassed by C Street on the west, 6th and 8th Streets on the north, M and J Streets on the east, and Harris on the south contains a rich diversity of housing, excellent examples of particular styles, and intact neighborhoods. The housing within these boundaries is the finest collection of intact architecture in the city and includes a wide range of periods and styles. Settlement-period folk housing is expressed in classic front-gables, hall-and-parlors, "I" houses, and pyramidal one- and two-story houses. Victorian housing includes small cottages and the high-style. Turn-of-the-century styles and Craftsman-period bungalows add to this rich historic collection. Thirties and post-war housing is also present, rounding out a century-long evolution of architectural styles. The quality of these structures individually and of the neighborhoods they collectively create is outstanding, and without question these neighborhoods should be maintained for their historic, architectural, social, and aesthetic values.

The one-way couplets, H and I Streets, cross Eureka from the bay to Harris Street. Linear architectural experiences, these two corridors express Eureka's diversity of styles, including folk, Victorian, Craftsman, and pre- and post-war houses. As two of Eureka's most-traveled streets, H and I are visual treats for the hundreds of residents who drive them each day.

One distinctive neighborhood is the area bounded by Del Norte, D, G, and Long and Carson. Part of the Prairie Addition, these streets are lined with gracious houses on spacious lots, all immaculately kept. Built in the twenties and late thirties, these houses include stucco cottages, Craftsman bungalows, Mediterranean types, and revival styles. Despite Eureka's renown as a city of Victorian architecture, its Craftsman-period

houses are wonderful. The city's bungalows are found in a variety of sizes, forms, and degrees of elaborateness, but their totality creates beautiful streetscapes and neighborhoods. The bungalow is the quintessential California house and Eureka's examples are outstanding.

A small area between Henderson and Harris and between Spring and D, excluding the Henderson Center shopping area, is another mixture of styles with a few Victorian and turn-of-the-century isolates, but generally it is an area of minimal traditional and bungalow houses built during the twenties and thirties, and some post-war houses. The minimal traditional is a very constrained and neat style, reflecting the limitations of the Depression and pre-war years. Several excellent examples of this style are located within this area.

The area south of Harris and extending roughly between E and Harrison Streets and north of a line through Manzanita is a mixture of styles, but with only a few 19th century examples. Twenties and thirties houses with some early and late forties styles are found in these blocks. Craftsman bungalows and the minimal traditional style are found throughout this area with a few Victorian isolates such as the lovely house at the corner of W and Everding and the Park Store at T and Hodgson.

Post-war housing, constructed in the late 1940s and throughout the 1950s, occurs as both infill and in tracts. Infill housing may be single houses on a street of older houses, but is also found as rows along one side of a block or both sides. Tracts, however, cover from several to many blocks and are recognized by similar style, age, and the absence of different styles, although there may be an occasional older house in the tract, left over perhaps from the earlier farmstead that occupied the land.

Several post-war tracts were identified as significant in Eureka's architectural heritage. These tracts retain their architectural integrity within a unified setting and were developed by Blakeslee-Spiering Construction Co. and Ernest Pierson Homes. Although not of sufficient age to warrant the "historic" designation, these post-war tracts do have both social and architectural value and recognition of that value today should ensure their protection tomorrow.

Redwood Gardens, developed by Chester Spiering in 1947-48, is located between Carson and Buhne on Summer, Pine, California, and Union. By July 1948, he had completed more than 60 houses in this tract. These houses are mostly in the minimal traditional style, popular during the thirties and forties. In 1948-49 he developed Eastwood Slopes between 17th and 18th and R and S Streets, completing 28 out of 50 houses by the summer of 1948. The Eastwood tract, built from 1949, extends the Eastwood Slopes area on P and R and 16th and 17th Streets. Spiering continued to build minimal traditional houses, although the area now includes fifties and sixties housing. It also has isolates from the 19th and early 20th centuries, including bungalows.

Ernest Pierson Homes developed a number of tracts, along with infills and short rows, and was responsible for building hundreds of Eureka houses. Several early post-war tracts were identified as retaining integrity of both architecture and setting. Pierson's development on Hillside Drive off McFarlan was built in the mid 1950s and contains good examples of this Pierson period. Among his Edgewood subdivisions is the classic 50s housing on Flora, Prairie, Forest Lake, and Middlefield. His O Street and Eastwood Drive houses are among the finest in Eureka.

The custom built homes, located in a beautiful setting and on spacious lots between N and P and Buhne and Eastwood Drive, are among the most prestigious in Eureka and described by Pierson as the "show place of Eureka's most distinctive homes." Built by several contractors, including Pierson, the houses were constructed over a twenty-year period, beginning in 1940 and after the war interruption, resuming in 1946 and continuing into the 1960s. Houses on O and Eastwood Drive were identified by the Heritage Society as worthy of National Register status.

To the south of Buhne and east of M Street is another fine area with some 19th century and bungalow isolates, but it is generally dominated by sixties architecture, including ranch styles. These neighborhoods

are intact architecturally and the integrity of setting is excellent. Although not of an age to be considered "historic," this area is significant for its fine examples and its residential unity and should be protected for its present value and its historic potential.

A small warehouse district, outside the National Register District, is located between 2nd and 4th and between A and Broadway. It contains several good examples, including the 1920 California Central Creameries building on A Street and a row on 3rd whose alley doors were served by a spur rail line (which, unfortunately, was removed within the past few years). Commercial and industrial architecture is concentrated in the waterfront and Broadway areas, the Old Town and downtown cores, and in such areas as Henderson Center, and along Wabash, Harris, Myrtle, and Harrison. Warehouses and industrial structures are often overlooked for their historic/architectural values, as are small commercial structures in neighborhood settings.

Particularly significant are neighborhood markets, all on corners and some still housed in their original buildings. These markets, even those in modern buildings, but most especially those in historic architecture, are important contributors to the historic and social context of their neighborhoods. Worthy of mention because of their fine buildings are Pat's Market at 11th and M; C&V Market at Randall and F; Comer's California Grocery at California and Hawthorne; Bonomini's Market at Allard and Little Fairfield, and the Park Store (no longer a market but the building is great) at Hodgson and T. Also worth mentioning is the Asian Oriental Food at Albee and Buhne, built in 1936, because it identifies an enterprise which is providing the same "corner market" service to its Asian neighbors.

A Fifth Street/Downtown corridor was identified extending from about D Street to J, and reaching up F to include the Eureka Theater and the Eureka Inn, and up I to encompass the County building on 6th and I. This section has unity in its commercial and public uses and in its visual qualities.

In the Myrtletowne section, which dates to the 19th century and developed along the road from Eureka to Arcata, are several notable collections of houses. Those identified include houses along West Avenue, from Myrtle to 18th on the east side and to about 14th on the west; several houses on East Avenue; Victorian styles on Myrtle from West Avenue east to nearly Sunny Lane; along Myrtle Avenue in the vicinity of Dean and Bay Streets and including several storefronts; along Bay Street; and the collection on both sides of McFarlan to just beyond 15th. Among these collections are a front-gable house on the west side of West Avenue near Myrtle which still has its wonderfully-decorated bargeboard, and a rare bungalow duplex on Bay Street.

Located at various places throughout the city are structures of both architectural and historic interest. These include such buildings as old fire stations, fraternal halls, the Eureka Woman's Club, churches, barns, residential watertowers, early 20th century garages, sheds, neighborhood storefronts, and schools.

This description is a rough identification of general areas which should be considered in historic resources planning. The boundaries are rough, the filter for identification was coarse, and the descriptions general. It should be emphasized again that only through research and evaluation of individual properties and collections can an informed decision be made about architectural and historical significance. It should never be assumed that a property is without significance because it is "outside the boundaries;" on the contrary, the assumption should always be that it is of value until proven otherwise.

FINDINGS

- The City of Eureka provides a number of neighborhood and community parks for its citizens, helping to meet their needs for both organized and dispersed recreation. The acreage provided per 1,000 residents is, however, below the low end of the range recommended in national standards for recreation planning. To the extent that Eureka's parks are utilized by residents from outside of the Planning Area, the ratio of park acreage per person is even lower.
- Because the Planning Area has abundant nationally and State-owned regional parkland within easy commute range, the city easily exceeds the national standards for regional park acreage per person.
- The City has identified and is pursuing several programs which will result in increasing the amount and quality of the recreational opportunities available in the City's parks and along the city's waterfront.
- The City provides a number of organized recreational programs for its citizens, including competitive and non-competitive sports, organized activities, and life-enrichment programs.
- The ethnography and archeology of the Planning Area are relatively well understood. A number of archeologically-important sites exist within the Planning Area, and it is possible that additional sites remain undiscovered or inadequately described; most sites would be expected in the vicinity of Humboldt Bay, but sites could occur elsewhere in the area.
- The General Plan Planning Area contains many remnants of the history of the Eureka area as a result a settlement pattern that did not obliterate its past as it developed its future. The Planning Area contains artifacts of the settlement period, early lumbering, agriculture, and the development of Eureka as a center of commerce and government. Historical communities in the Planning Area which retain a separate character include Fields Landing, King Salmon, Humboldt Hill, Indianola, Samoa, and Fairhaven. Bucksport and Cutten have largely merged with Eureka. The historical communities of Elk River and Freshwater Corners have largely disappeared.
- Eureka contains many examples of historically important neighborhoods and buildings. The history of the city is reflected in and reflects the built environment.
- Historical significance is composed of both objects and structures which meet or exceed specified age criteria, and the context in which the objects and structures exist. The contextual significance of historical features in the Planning Area is very great; many features still occur in their original context. The Planning Area includes many historical resources recognized to be of local, statewide, or national significance.

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CHAPTER 9

NATURAL RESOURCES



INTRODUCTION

This chapter describes natural resources in the General Plan Planning Area. The information contained in this chapter comes primarily from the City of Eureka, the County of Humboldt, and various experts who have prepared reports and studies of natural resources in the Planning Area.

This chapter is divided into ten sections. The first section describes water resources in the General Plan Planning Area. The second section discusses surface water and groundwater quality. The third section describes soils in the General Plan Planning Area. The fourth section summarizes agricultural and timberland resources. The fifth section describes biological habitats and wildlife. The sixth section discusses special status communities, wildlife, and plant species. The seventh section discusses air quality. The eighth section is a set of findings related to natural resources in the General Plan Planning Area. Finally, the ninth and tenth sections list bibliographic references and persons consulted in the course of preparing this chapter.

NATURAL SETTING

Eureka is located within the second-largest estuarine complex in California, and the natural resources in the General Plan Planning Area are among the least-affected of the entire California coast. Humboldt Bay has not experienced the effects of urbanization in its watershed to the same degree as other estuarine complexes in the state, although Humboldt Bay and its associated wetlands have undergone substantial modification. Sedimentation resulting from logging in the bay's tributary watersheds has contributed to making the bay shallower than it was in 1850, an effect that has probably made the area more desirable for many wildlife species. Diking the formerly abundant salt marsh wetlands for agricultural reclamation did not remove all of their wetland values, but they now function differently than at the time the first Europeans visited the bay. Activities associated with commercial oyster culture are very destructive of habitat values in adjacent tidal flats, but the affected habitats recover quickly and the planktonic offspring of the oysters form a major component in the complex aquatic food web in the bay ecosystem.

Other effects of human use are or have been less benign. Use of Humboldt Bay as a port carries a constant risk of fuel spill or contamination by spillage of petroleum products or other hazardous cargo. Without question, the greatest risk to the bay's ecosystem is represented by the introduction of exotic aquatic organisms in ballast water (Carlton and Geller, 1993). Such effects are already evident in the erosion of remnant salt marshes because of burrowing by an introduced isopod crustacean (*Exosphaeroma inornata*). The very nature of those salt marshes has been affected by exotic species. The cordgrass species that co-dominates salt marshes in Humboldt Bay (*Spartina densiflora*) is not native to North America; it appears to have been introduced from Chile (probably as a contaminant of ship ballast during the redwood export trade to Chile no later than 1870). Whether the introduction created ecological changes in Humboldt Bay salt marshes cannot now be investigated.

Regardless of these past effects, the Humboldt Bay ecosystem still harbors more fish species than do other estuaries along the Pacific Coast (110 recorded species). The commercial catch of groundfish landed in Humboldt Bay accounts for about 90 percent of the total for the state, and the deeper channels in Humboldt Bay are key spawning and juvenile rearing habitat for many of those species. The deep channels in the bay are also the primary spawning area for the commercially important dungeness crab (*Cancer magister*). The bay provides essential habitat and food production for migratory waterfowl and shorebirds (discussed later in this chapter).

WATER RESOURCES

WATERSHEDS, RIVERS, AND STREAMS

The General Plan Planning Area is composed of many small watershed areas; the headwaters of every stream in the Planning Area are visible from Humboldt Bay. There are two major drainage basins in the Planning Area, one including the area east of the city and a second draining the southeastern part of the Planning Area and the southern part of the city itself. In addition, there are several smaller watersheds within the city limits. Drainage basins in the General Plan Planning Area are shown in Figures 9-1 and 9-2.

The predominant existing uses of these watersheds are best categorized as maintaining natural resource values. Any use of surface watercourses in the Planning Area for water supply purposes can be considered minor and localized. A secondary use of all of the watercourses is the conveyance of storm runoff. The drainage functions of these streams are described in Chapter 7, Public Facilities; general descriptions of the drainage basins are provided in the following paragraphs.

Freshwater Creek and Slough

Freshwater Creek enters the Planning Area from the east at Three Corners, the intersection of Freshwater Road with Myrtle Avenue. The majority of its drainage basin is thus outside of the General Plan Planning Area. Freshwater Creek is the primary drainage on the west side of Kneeland Ridge (the high ridge forming the eastern watershed from the city) north of the Elk River and south of the Jacoby Creek basin. The total drainage basin area for Freshwater Creek east of the Planning Area is approximately 35 square miles.

Historical naming conventions on the West Coast have resulted in a practice of calling creeks that are hydraulically controlled by tidal elevations "sloughs." Freshwater Creek is hydraulically controlled by tidal elevations (that is, the flow in the creek and the water surface elevation depend on the elevation of tidewater) east of Three Corners. The reaches of this creek within the Planning Area are thus properly named Freshwater Slough. Within the Planning Area, Freshwater Slough courses westward approximately parallel to Myrtle Avenue, until it merges with Ryan Slough north of the Ryan Slough Bridge. Downstream from this confluence, the larger drainage is named Eureka Slough.

Within the Planning Area, Freshwater Slough receives the runoff of the coastal terraces in the Pigeon Point area, as well as the drainage from some of the diked former tidelands in the Three Corners area. As with other diked former tidelands in the Planning Area, these low-lying seasonal wetlands occur at elevations that would be flooded by tidewater without the dikes, and the drainage culverts passing through the dikes are fitted with tidegates.

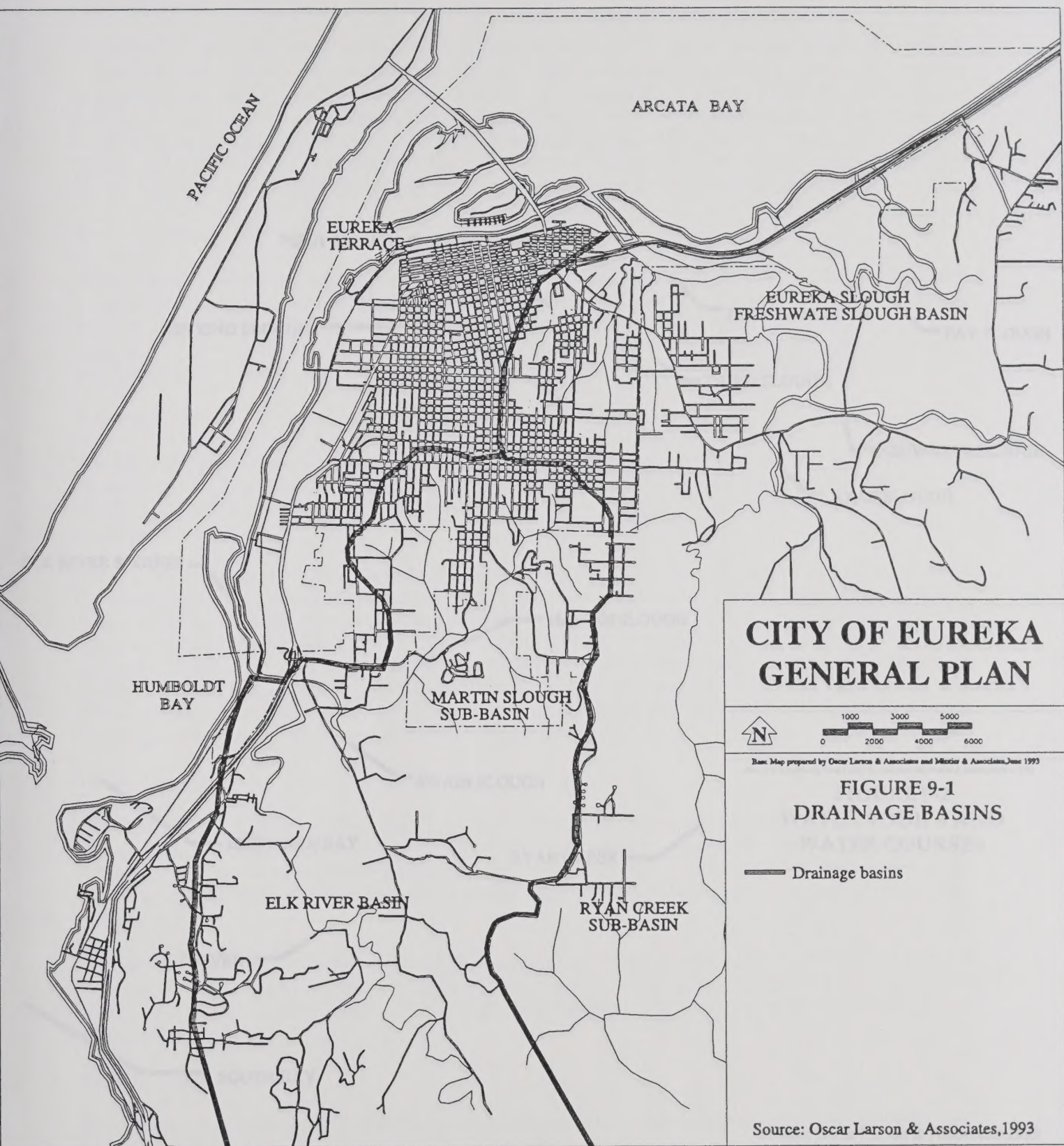
Ryan Creek and Slough

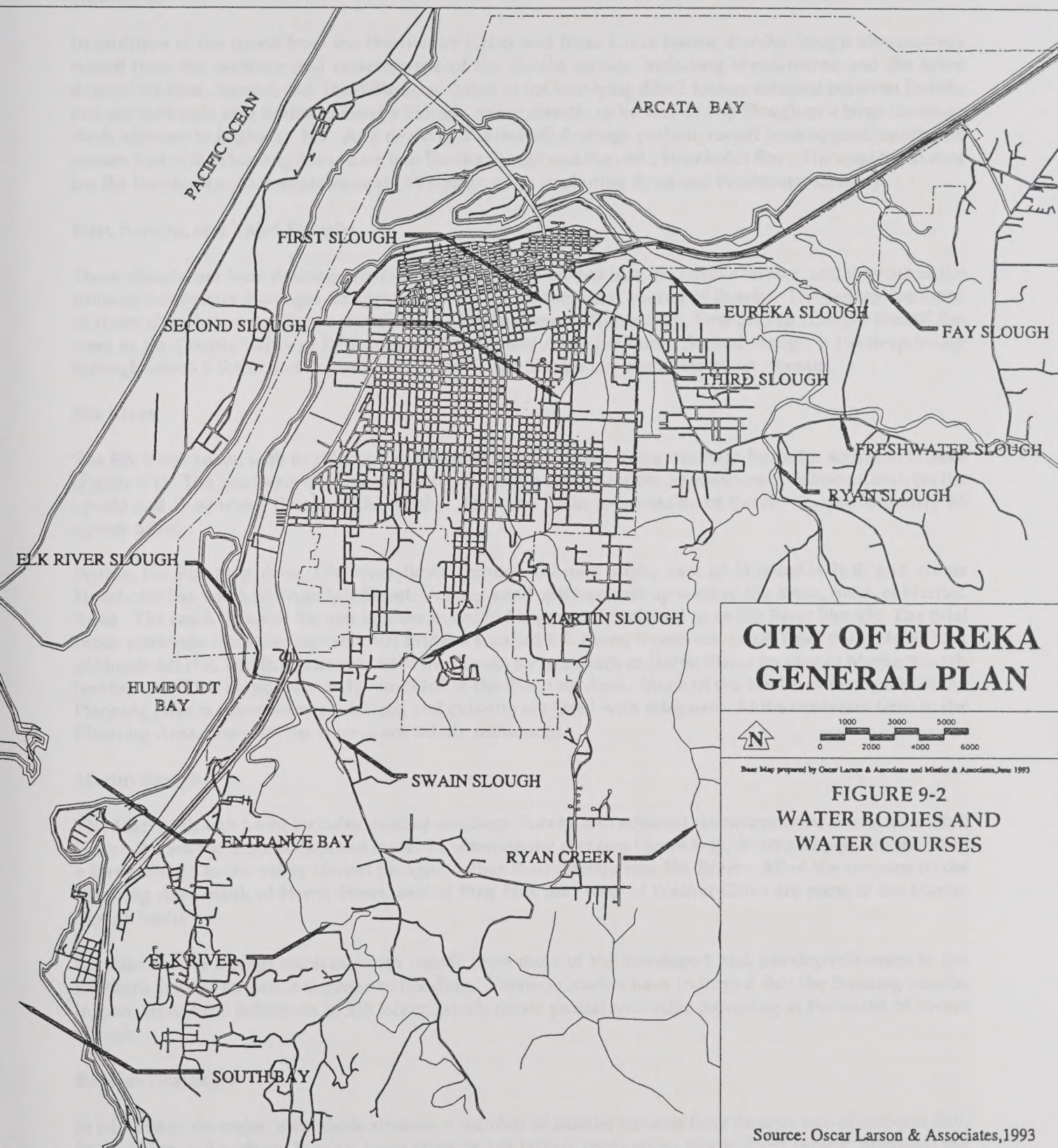
Ryan Creek is a medium-sized drainage oriented north-south and lying along the southeastern margin of the Planning Area (see Figure 9-2). The creek's headwaters lie near the Elk River valley and in the area of upper Pigeon Point and Mitchell Roads. Ryan Creek drains the eastern margin of the Cutten and Myrtle town areas. The total basin area is approximately 14 square miles.

Tidewater control of flows in Ryan Creek extends southward from Freshwater Slough, under the Ryan Slough Bridge on Myrtle Avenue; hence the region near Lower Mitchell Road is called Ryan Slough.

Eureka Slough

Below its confluence with Ryan Slough, the Freshwater Slough channel is named "Eureka Slough"; there is no other physical change that would lead to a change in name. This large tidal slough runs northward and





westward, to enter Humboldt Bay east of the Samoa Bridge and north of the Montgomery Ward store (see Figure 9-2).

In addition to the runoff from the Freshwater Creek and Ryan Creek basins, Eureka Slough also receives runoff from the northern and eastern parts of the Eureka terrace, including Myrtle Towne and the areas drained by First, Second, and Third Sloughs. Most of the low-lying diked former tideland between Eureka and the Indianola area drains to Eureka Slough, either directly or by way of Fay Slough or a large drainage ditch adjacent to Highway 101. As a result of this overall drainage pattern, runoff from approximately the eastern half of the Planning Area flows into Eureka Slough and then into Humboldt Bay. The total basin area for the Eureka Slough is approximately 60 square miles (including Ryan and Freshwater Creeks).

First, Second, and Third Sloughs

These sloughs are local drainage courses that have been eroded into the Eureka terrace, and they act as the primary stormwater drainages for approximately the northeastern quarter of Eureka. The general locations of these sloughs are familiar to travelers on Myrtle Avenue (Figure 9-2). First Slough (Cooper Gulch) lies west of the County Office of Education and ends near Albee Stadium. Second Slough is the deep valley through which S Street and Buhne Street cross. Third Slough lies east of Harrison Avenue.

Elk River

The Elk River basin, with its tributary creeks and sloughs, is the major drainage basin for southern Eureka (Figure 9-1). The headwaters lie outside of the Planning Area, near the headwaters of Salmon Creek (to the south) and Freshwater Creek (to the north). The total basin area outside of the city is approximately 55 square miles.

Within the Planning Area, Elk River flows through a broad valley east of Humboldt Hill, and enters Humboldt Bay south of Truesdale Street. A large sand spit has built up west of Elk River, north of Herrick Road. The reach between the spit and the mainland is generally referred to as Elk River Slough. The tidal reach upstream from the Highway 101 bridges is called Elk River; it receives runoff from the eastern flank of Humboldt Hill, and from virtually all of the Eureka terrace south of Harris Street by way of Martin Slough (see below). This is approximately one-third of the Planning Area. Much of the Elk River floodplain in the Planning Area is diked former tideland, and culverts are fitted with tidegates. At the upstream limit in the Planning Area, however, the river is not tidally influenced.

Martin Slough

The Martin Slough basin includes most of southern Eureka and adjacent unincorporated areas, from Pine Hill on the west to Sequoia Park and most of Cutten on the east (see Figure 9-1). Martin Slough empties into a large slough in the valley (Swain Slough), rather than directly into Elk River. All of the canyons in the Planning Area south of Harris Street, east of Pine Hill, and west of Walnut Drive are parts of the Martin Slough basin.

Because Martin Slough receives storm runoff from most of the developed and developable areas in the southern Eureka terrace, it is prone to flooding. Previous studies have indicated that the flooding results, in part, from tidal influences in Elk River, which create partial hydraulic damming at the outlet of Swain Slough.

Bayside Drainages

In addition to the major, identifiable streams, a number of smaller streams flow directly into Humboldt Bay. In northern and western Eureka, these streams are largely confined to storm drain piping, although the drainage system north of Bayshore Mall delivers runoff to the Maurer/Palco wetland complex. Between

Allard Avenue and Elk River, and on the west side of Humboldt Hill, the localized drainages have both free-flowing and enclosed channels. All of these small watercourses ultimately flow directly into either Elk River Slough or Humboldt Bay itself. In the King Salmon-Fields Landing area, these seasonal drainages help to support a diversity of wetland types.

RESERVOIRS

There are no significant surface impoundments on any of the Planning Area watercourses.

The City of Eureka purchases its municipal water supply from the Humboldt Bay Municipal Water District (HBMWD), which produces water by subsurface diversion in the Mad River channel near Arcata. The HBMWD maintains a reservoir (Ruth Lake) behind Matthews Dam, upstream about 70 miles in southwestern Trinity County. The water stored in the reservoir is released downstream in the Mad River, to be diverted near Arcata.

The City of Eureka maintains a water storage reservoir near the three-way intersection of Hemlock Street, Dolbeer Street, and Walnut Drive. The reservoir consists of a concrete lining inside earthen embankments, with both influent and effluent flows confined in pipes.

GROUNDWATER

Groundwater is water stored in and/or flowing through the spaces between individual rock particles beneath the ground's surface. Most groundwater deposits result from the infiltration of surface rainfall, either at the same site where a well is drilled or at a distant location hydraulically connected to the site tapped by the well. Most groundwater is fresh, but in coastal areas it is possible for seawater to infiltrate into porous soils, so that a contact or transition zone occurs below the surface. The location of this transition zone can be affected by removal of groundwater through well pumping. As fresh water is removed by pumping, the transition zone will migrate toward the well; excessive groundwater pumping can result in saltwater intrusion, making continued use of the well for domestic purposes untenable.

Within the General Plan Planning Area, groundwater may be used in some areas (e.g., the Upper Elk River Valley) for municipal purposes, but most of the Planning Area is served by surface supplies, while groundwater is used primarily for agricultural and landscaping purposes. Water supply considerations are discussed in Chapter 7, Public Facilities and Services.

The General Plan Planning Area is included within the "Table Bluff - Eureka Plain" groundwater region. This region is defined by the Hookton Formation and Wildcat Formation sediments underlying the Planning Area and the major surface water basins that provide recharge for the sediments. Thus, the Eureka terrace, the Elk River basin, and the Freshwater Creek basin are the primary groundwater units in the Planning Area (see Figure 9-1).

There is limited potential for developing groundwater as a major water source in the Table Bluff - Eureka Plain. This conclusion is based on the relatively small surface areas and relatively thin sediment depths in these basins, in combination with variable permeabilities in the sediments. The Humboldt Community Services District currently operates three groundwater wells in the lower Elk River basin (see Figures 9-1 and 7-1), with a proven, sustained delivery capacity exceeding 1,500 gallons per minute, equal to a sustained production of more than 2,400 acre-feet per year. It is not known whether these groundwater aquifers are capable of sustained production of larger volumes of water, although the District is interested in conducting further testing in order to find out.

WETLANDS AND DEEPWATER AREAS

Planning Background

The water resources of the General Plan Planning Area include a number of wetland and deepwater areas. These are regions or sites that are inundated or saturated by freshwater or saltwater long enough that their biological communities are adapted to live in inundated or saturated conditions. In tidal contexts, locations with bottom elevations lower than extreme low water spring (about 6.5 feet below sea level at the bay entrance) are defined as deepwater areas. All tidal areas with higher bottom elevations and all freshwater areas meeting the biological criterion above are defined as wetlands. There are no known freshwater-dominated deepwater areas in the General Plan Planning Area.

Wetlands and deepwater areas are considered biologically significant habitats; this component of their function is addressed later in this chapter. Wetlands and deepwater areas also provide a number of other valuable services; these are described briefly in this subsection. Commonly recognized wetland functions (or functional values) are described briefly in Table 9-1. This "valuation" approach is based on the techniques developed for the Federal Highway Administration.

TABLE 9-1
FUNCTIONAL VALUES PROVIDED BY WETLANDS

Functional Value	Description
Groundwater Recharge	When a wetland occurs upstream and/or above a groundwater aquifer, and has a porous basin, then water flowing into the wetland recharges the aquifer.
Groundwater Discharge	When a wetland occurs upstream and/or above a desired surface water body, groundwater flowing out through the wetland maintains the water body.
Floodflow Alteration	Wetlands in floodplains can shield adjacent uplands from the effects of flowing floodwaters (especially woody riparian forest). Wetlands "spread out" floodwaters, releasing them as instream flows decrease; this desynchronizes flood peak flows.
Sediment Stabilization	Vegetation in wetlands makes sediments more resistant to the erosive effects of flowing water.
Sediment or Toxicant Retention	The reduced water velocities in wetlands cause sediment to be deposited. The sediment is associated with many forms of toxic pollutants, which are thus deposited or sequestered in wetlands.
Nutrient Removal or Transformation	Some nutrients are associated with sediments, and are trapped in wetlands. In addition, plants and microorganisms growing in wetlands remove nutrients, a form of natural pollution control.
Productivity Export	The organisms in wetlands fix energy in biologically useful form. Some (to most) of this fixed energy may be entrained by flowing water and "exported" to downstream aquatic communities. Many wetlands are more productive than most agricultural croplands.
Aquatic Diversity and Abundance	Wetlands provide food and habitat for a great variety of aquatic biological organisms (e.g., fish), including some species found nowhere else.
Wildlife Diversity and Abundance	Wetlands also provide food and habitat for a great variety of terrestrial biological organisms (e.g., waterfowl), including some species found nowhere else.
Recreation	Wetlands are important for outdoor recreation of many forms, including hunting and fishing, birding, photography, and similar uses.
Uniqueness and Heritage Value	Many wetlands are uncommon, and are remnants of the landscape that was present before settlement. They are part of the heritage of current and future generations.
Source: Federal Highway Administration	

From a planning perspective, wetlands and deepwater areas assume enhanced significance because they are addressed specifically in the Federal Clean Water Act, the State Coastal Act, and a host of related Federal and State regulations. The Clean Water Act also incorporates the other water resources components addressed in this chapter. In California, the Clean Water Act (and several State laws addressing similar concerns) has

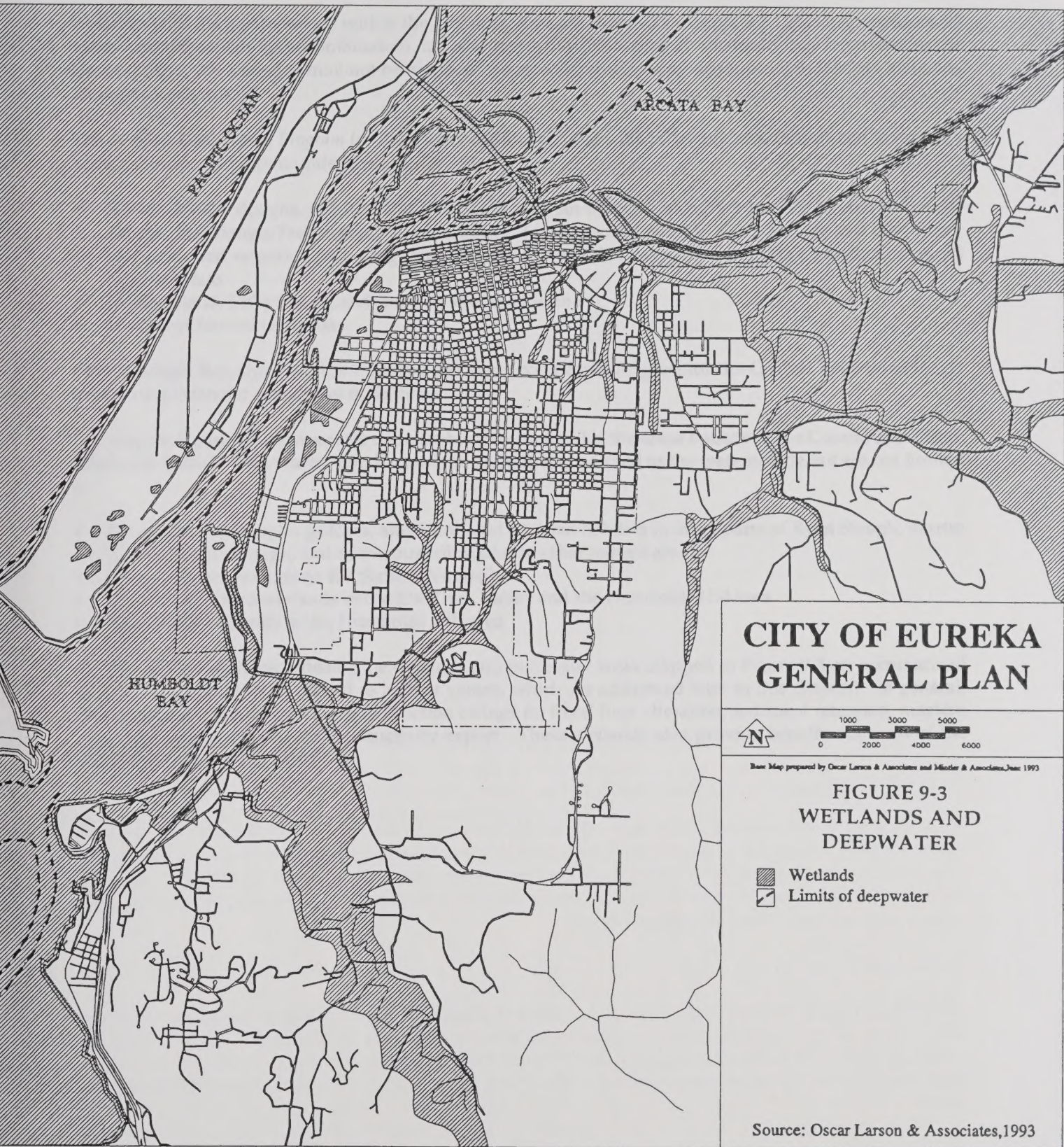
been implemented through the promulgation of the *Basin Plan* which was prepared by the North Coast Regional Water Quality Control Board in 1988. The *Basin Plan* establishes "Beneficial Uses" for the waters in the Planning Area, shown in summary in Table 9-2. The majority of these beneficial uses directly address the wetlands and deepwater areas in the General Plan Planning Area. The implementation of the Federal laws involves both Federal and State regulatory programs, acting in concert.

TABLE 9-2
BENEFICIAL USES RECOGNIZED FOR WATERS
General Plan Planning Area

Beneficial Use	Description
Agricultural Supply (AGR)	Crop, orchard, and pasture irrigation, stock watering, support of vegetation for range grazing, and all uses in support of farming and ranching operations.
Industrial Service Supply (IND)	Uses that do not depend primarily on water quality, such as mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
Industrial Process Supply (PROC)	Process water supply and all uses related to the manufacturing of products.
Navigation (NAV)	Commercial and naval shipping.
Water Contact Recreation (REC-1)	All recreational uses involving actual body contact with water, such as swimming, wading, water-skiing, skin diving, surfing, sport fishing, uses in therapeutic spas, and other uses where ingestion of water is reasonably possible.
Non-Contact Water Recreation (REC-2)	Recreational uses which involve the presence of water but do not require contact with water, such as picnicking, sunbathing, hiking, beachcombing, camping, pleasure boating, tidepool and marine life study, hunting, and sightseeing and aesthetic enjoyment in conjunction with the above activities.
Ocean Commercial and Sport Fishing (COMM)	The commercial collection of various types of fish and shellfish, including those taken for bait purposes, and sport fishing in oceans, bays, estuaries, and similar non-freshwater areas.
Cold Freshwater Habitat (COLD)	A cold water habitat to sustain aquatic resources associated with a cold water environment.
Preservation Areas of Special Biological Significance (BIOL)	Marine life refuges, ecological reserves, and designated areas of special biological significance.
Saline Water Habitat (SAL)	Inland (i.e., off-ocean) saline water habitat for aquatic and wildlife resources.
Wildlife Habitat (WILD)	Water supply and vegetative habitat for the maintenance of wildlife.
Preservation of Rare and Endangered Species (RARE)	Aquatic habitat necessary, at least in part, for the survival of species established as rare and endangered species.
Marine Habitat (MAR)	Provides for the preservation of the marine ecosystem, including the propagation of fish, shellfish, marine mammals, waterfowl, and vegetation such as kelp.
Fish Migration (MIGR)	A migration route and temporary aquatic environment for anadromous and other fish species.
Fish Spawning (SPWN)	A high quality aquatic habitat especially suitable for fish spawning.
Shellfish Harvesting (SHELL)	The collection of shellfish such as clams, oysters, abalone, shrimp, crab, and lobster for either commercial or sport purposes.
Source: North Coast Regional Water Quality Control Board	

In addition to the Clean Water Act programs, the California Coastal Act requires that land use practices in the "Coastal Zone" conform with the requirements of the Coastal Act. The City of Eureka and the County of Humboldt have adopted (and the State has certified) Local Coastal Programs for the affected areas.

This chapter does not attempt to resolve existing discrepancies among the definitions of "wetland" that results from the texts of the laws named above. The general concept of wetland assumed here is that used in the California Coastal Act, since that Act applies to a large part of the Planning Area.



Wetlands

Wetlands (and deepwater areas) within the Planning Area are mapped in Figure 9-3. This map includes all major wetland categories in combination, in order to portray the degree of constraint they represent for the General Plan. All wetlands may not be mapped; site-specific studies may be required to identify wetlands on individual parcels.

The certified *Local Coastal Program* for the City of Eureka identifies the following as wetlands and deepwater areas subject to protection under the Coastal Act:

- Rivers, creeks, sloughs, gulches, and associated riparian habitats, including but not limited to Eureka Slough, Fay Slough, Freshwater Slough, Cooper Slough, Second Slough, Third Slough, and Elk River
- Wetlands and estuaries, including that portion of Humboldt Bay within the City's jurisdiction, (and) riparian areas
- Indian Island, Daby Island, and (part of) Woodley Island
- Grazed or farmed wetlands

The *Humboldt Bay Area Plan*, the County's certified *Local Coastal Program* for the Coastal Zone outside city limits, adopts similar categorical definitions.

The map in Figure 9-3 incorporates comparable information for the areas outside of the Coastal Zone, both inside and outside of city limits. Specific wetland areas that are added to the map include but are not limited to:

- Rivers, creeks, sloughs, gulches, and associated riparian habitats in all or parts of Ryan Slough, Martin Slough, Swain Slough, and numerous tributaries to other named areas
- Dune hollow wetlands on the Samoa Peninsula
- Grazed or farmed wetlands in the Elk River Valley and the Humboldt Hill area
- Additional wetlands in the Humboldt Hill area

The wetland functions provided by the wetlands and deepwater areas mapped in Figure 9-3 are summarized in Table 9-3 (except those related to habitat values, which are addressed later in this chapter). In general, Planning Area wetlands provide high function ratings for flood flow alteration, sediment retention, nutrient removal/transformation, and productivity export. These wetlands also provide benefits for most of the beneficial uses listed in Table 9-2.

TABLE 9-3

**RELATIVE IMPORTANCE OF WETLAND FUNCTIONAL VALUES
General Plan Planning Area***

Functional Value	Relative Importance in Planning Area
Groundwater Recharge	Not very important. Planning Area wetlands generally do not occur in locations where groundwater recharge is significant. In addition, most wetland soils are very fine-grained (non-porous).
Groundwater Discharge	Unimportant. Wetland locations do not contribute groundwater discharges for maintaining surface water features.
Floodflow Alteration	Important. Floodplain wetlands in Freshwater and Elk River valleys store floodwaters, allowing gradual release to Humboldt Bay. Intensified development (as in Martin Slough Valley) increases the importance of this value.
Sediment Stabilization	Somewhat important. Wetlands adjacent to Highway 101 northeast of Eureka stabilize the alluvial sediment and reduce the erosive force of tides and wind-driven waves, protecting the railroad and highway.
Sediment or Toxicant Retention	Important. The diked former tidelands northeast of Eureka and in the Elk River Valley hold sediments that would otherwise enter the bay and the marine environment. The bottom sediments in the bay (an estuarine intertidal wetland) trap toxic materials in the water column.
Nutrient Removal or Transformation	Important. The diked former tidelands provide a valuable service in trapping animal wastes before they can enter the bay, or in converting them to more biologically useful products.
Productivity Export	Very important. The productivity of "upstream" wetlands is one of the primary components in maintaining the biological significance of the Humboldt Bay aquatic ecosystem. This topic is discussed elsewhere in this chapter.
Aquatic Diversity and Abundance	Very important. This topic is discussed elsewhere in this chapter.
Wildlife Diversity and Abundance	Very important. This topic is discussed elsewhere in this chapter.
Recreation	Important. Planning Area wetlands play a critical role in protecting the aquatic environment of Humboldt Bay. They are important for providing habitat for birds, fish, and other organisms that are key components of many local recreational activities.
Uniqueness and Heritage Value	Important. As the least altered of California's major estuaries, the Humboldt Bay ecosystem could be of supreme importance in understanding coastal ecosystems.
Note: *Habitat values and biological importance are featured in discussions later in this chapter, and are only indicated briefly in this table.	
Source: North Coast Regional Water Quality Control Board; Oscar Larson & Associates	

Deepwater Areas

Humboldt Bay includes several square miles of a deepwater area, as defined by State regulatory policy. The bay provides beneficial uses in addition to those provided by wetlands, particularly in two general categories important from a planning perspective. First, the bay is essential for navigation and commerce, including fishing. Second, Humboldt Bay is a key spawning area for a majority of the fish and shellfish species of commercial and recreational importance locally.

TIDELANDS

Until filling began in the mid-1800s, much of the land area along Eureka's shoreline, including the entire area now known as the Westside Industrial Area, consisted of tidelands and submerged lands. Filling and draining of many of these areas began in the 1870s with the construction of dikes to reclaim the land for agriculture. Over the years these areas were filled with bay dredgings, rocks, and assorted lumber mill wastes.

As these tidelands and submerged lands were filled, they were subdivided, sold, and developed. Legally, however, the people of California own in trust California's submerged lands and tidelands as navigable

water. Recognizing the private ownership and sale of the filled tidelands, the California Supreme Court in 1913 held that the sale of tidelands passed private title to land lying between the lines of high and low tide, but the tidelands were subject to a public trust easement for commerce, navigating, and fisheries. These easements on former tidelands create a cloud on the property title, making it difficult for owners to sell their property or secure financing for development. To clear title, the easement must be removed. Typically, this involves negotiations among the State Lands Commission, the City of Eureka, and the property owner for an exchange of land or an in-lieu payment.

The City is a party to these transactions by virtue of the fact that over the years the State Legislature has granted to the City of Eureka in trust the State's interest in the submerged lands and the tidelands within Eureka's city limits, with continuing oversight by the State Lands Commission. In some cases in the Westside Industrial Area, the City is also the property owner seeking to sell its land to a private party.

When a former tideland is sold or developed for a non-bay-related use (e.g., a retail commercial use not related to bay activities), the easement must be removed in exchange for either a payment into the Eureka Tidelands Trust Fund, administered by the City, or purchase and dedication of equivalent land. The money that accumulates in the fund from tideland transactions can be used only for bay-related purposes, such as "establishment, improvement, and conduct of harbors, construction of piers and all other works necessary or convenient for the promotion and accommodation of commerce and navigation."

In the case of the former submerged lands, the property is still legally owned by the people of California, and users of the property must pay lease payments into the Eureka Tidelands Trust Fund.

Submerged lands and tideland issues have been resolved for much of the waterfront area. For the remaining areas, owners of former tidelands seeking to sell or develop their property must negotiate with the City and State Lands Commission to remove the easement and either pay into the Eureka Tidelands Trust Fund or purchase and dedicate equivalent land. In the case of former submerged lands, lease payments must be made to the Eureka Tidelands Trust Fund.

WATER QUALITY

SURFACE WATER

Municipal water supplies in the Planning Area are derived primarily from the Humboldt Bay Municipal Water District (HBMWD) system or from individual wells or surface diversions. HBMWD is required to comply with state Department of Health Services standards for water quality. The results of water quality testing for HBMWD-supplied water are shown in Table 9-4.

TABLE 9-4
MUNICIPAL WATER QUALITY
General Plan Planning Area

Constituent	Applicable State or Federal MCL Standard	Measured Concentration
Primary Standards		
Turbidity	Monthly average of 1 NTU	0.34 NTU (Averages ranged between 0.10 and 5.95 NTU)
Coliform	≤1 positive test per month	No positive tests
Trihalomethanes	0.1 mg/l	0.0054 to 0.016 mg/l
Radioactivity		
Alpha particles	15 pCi/l	<0.79 pCi/l
Radon	300 pCi/l	22-58 Pci/l
Aluminum	1.0 mg/l	Not detected
Arsenic	0.05 mg/l	Not detected
Barium	1.0 mg/l	0.097 mg/l
Cadmium	0.01 mg/l	Not detected
Chromium	0.05 mg/l	Not detected
Fluoride	1.4-2.4 mg/l	Not detected
Lead	0.05 mg/l	Not detected
Mercury	0.002 mg/l	Not detected
Nitrate (NO ₃)	45 mg/l	0.97 mg/l
Selenium	0.01 mg/l	Not detected
Silver	0.05 mg/l	Not detected
Secondary Standards		
Color	15 units	Not detected
Odor	3 units	Not detected
Chloride	500 mg/l	3.5-5.1 mg/l
Copper	1.0 mg/l	Not detected
Foaming Agents	0.5 mg/l	Not detected
Iron	0.3 mg/l	≤0.59 mg/l; usually not detected
Manganese	0.05 mg/l	Not detected
Sulfate	500 mg/l	12-14 mg/l
Zinc	5.0 mg/l	≤0.05 mg/l
Total Dissolved Solids	1000 mg/l	110-140 mg/l
Note: *mg/l = milligrams per liter; this is roughly equal to parts per million; MCL =maximum contaminant levels; NTU = turbidity units.		
Source: Humboldt Bay Municipal Water District		

Water quality is measured by sampling the water for potential pollutants, then comparing the sample test results with standards established by the California Department of Health Services, by the U.S. Environmental Protection Agency, or by both. In the case of different standards, the more stringent standard applies. The standards are generally known as Maximum Contaminant Levels (MCLs), and are subject to revision to even-stricter levels as additional evidence of health effects is compiled. Primary regulatory

standards cover potential pollutants with direct links to health. Secondary standards have been established to cover aesthetic qualities such as taste, odor, and color. These standards are reflected in Table 9-4.

Municipal water from HBMWD is also monitored for certain other constituents, for which regulatory standards and MCLs have not been established:

- Acidity (pH) - Domestic water supplied by HBMWD has pH in the range of 7.2 to 7.6, which is slightly basic (neutral pH is 7.0).
- Hardness - Hardness is a measure of dissolved inorganic materials. As hardness increases, pipe scale buildup is more common, and the ease of lathering soap decreases. HBMWD water is tested for the concentration of calcium carbonate as a measure of hardness. Calcium carbonate concentrations in the water fall within the range (75 to 100 mg/l) considered optimal for household use.
- Sodium - The sodium content of HBMWD water occurs in a narrow range (4.8 to 5.2 mg/l).
- Calcium - Calcium ion content in HBMWD water has been in the range of 25 to 33 mg/l.
- Magnesium - The magnesium content of HBMWD water has been in the range of 4.0 to 5.4 mg/l.

Surface water quality within the Planning Area varies according to the dominant land use. The *Basin Plan* establishes minimum water quality criteria for surface waters, the importance of which differs according to location and land use. For example, small streams in forested areas may have specific criteria for turbidity and temperature as the most important criteria. In farmed wetlands (diked former tidelands) the criteria for bacterial levels and biochemical oxygen demand may be the most important criteria. The *Basin Plan* includes general water quality performance standards. It also includes the *Bays and Estuaries Plan*, which establishes performance criteria for water quality in Humboldt Bay.

The *Basin Plan* (and its underlying basis for regulating water quality, the Clean Water Act) lie behind two processes which will require additional actions to protect water quality; both are related to "nonpoint-source" pollution. In the first instance, the City of Eureka and major industrial operators must take actions to ensure that stormwater runoff does not result in violations of adopted surface water quality regulations. Second, dairy and other agricultural operators in the project area must prepare themselves to control dairy waste and other types of pollution in order to eliminate what some authors (e.g., Baker 1993) have identified as the largest impediment to improving surface water quality in the United States. Even though the regulatory processes implementing these two initiatives are not final, the General Plan should be prepared to be consistent with the appropriate parts of the *Basin Plan* and with these programs.

In general, surface water in the Planning Area meets the performance criteria currently established in the *Basin Plan*. The *Basin Plan* is a dynamic document, however, and changes during the effective life of the Eureka General Plan can be expected.

GROUNDWATER

As is true for surface water quality, groundwater quality is subject to regulation by local, state, and/or federal agencies. The 1988 Water Quality Control Plan for the North Coast Region (the *Basin Plan*) establishes the basic policy for groundwater, which is as follows:

- It may not contain substances which produce taste or odor in concentrations high enough to affect beneficial uses adversely;
- Groundwater used for domestic or municipal supply may not include concentrations of coliform organisms exceeding a median of 2.2 per 100 milliliters over any 7-day period;

- Groundwater used for domestic or municipal supply may not contain chemical constituents exceeding the concentrations allowed in state regulations governing hazardous materials; and
- Groundwater used for domestic or municipal supply may not contain concentrations of radioactive materials exceeding those allowed in state regulations governing hazardous materials.

The Basin Plan includes a provision that allows the Regional Water Quality Control Board to establish specific criteria in response to new or additional information about effects of these constituents on the beneficial uses of groundwater. Additional requirements for groundwater quality are found in Chapter 15 of Title 22 of the California Code of Regulations; these are state mandates for hazardous materials, noted above to be incorporated into the Basin Plan. As for surface water quality, Federal standards for groundwater quality are incorporated into (and in some cases exceeded by) the State standards.

The quality of groundwater for domestic or municipal use varies within the Planning Area. Some groundwater (e.g., the water produced by the three Humboldt Hill wells operated by the Humboldt Community Services District) meets all established criteria for municipal use. Other groundwater quality is impeded by ionic or bacterial constituents and is not suitable for domestic or municipal use. Groundwater close to the seawater wedge generally contains elevated ion levels even if it is "fresh" water. Groundwater trapped within the marine sediments themselves at the time they were deposited has even lower quality.

The low-lying valleys near the margins of the Planning Area, many of which already have relatively high densities of residential development, occur within a region of soil types that are marginal for onsite wastewater treatment and disposal. In 1979, the Regional Water Quality Control Board adopted a prohibition against waiving strict compliance with the basin plan's criteria for onsite waste disposal systems. Even so, the groundwater in areas with higher residential densities is often contaminated with bacterial and nitrogen-rich wastewater. This contamination has resulted in impaired water supplies and in adverse health effects in some instances. Just such a result led to the 1992 extension of water service by the Humboldt Community Services District to the Freshwater Valley.

An additional source of groundwater contamination within the Planning Area is pollution from leaking underground tanks or from past improper disposal of fuel or chemicals used in business and industry. The number of known sites within the Planning Area with chemical contamination currently exceeds 200. It is very likely that additional sites of contamination exist, particularly north of Second Street or west of Broadway in Eureka. Federal, state, and local regulations have been established for remediating contaminated sites and groundwater. See Chapter 10 for further discussion of toxic contamination of soil and groundwater.

The effect of onsite waste disposal systems (i.e., septic tank and leachfield systems) is a significant planning concern in the Planning Area (and elsewhere in the North Coastal Basin). The Basin Plan includes a specific implementation policy for controlling water quality with respect to such systems (pp. 4-7 to 4-25). Such onsite systems generally are unsuitable for use in densely developed urban areas. Rural areas may experience water quality degradation if soil or groundwater conditions are unsatisfactory for such systems, or if the density of the systems is too high. As noted above, the Planning Area includes regions which have experienced onsite waste disposal failures in the past. While most of the densely developed parts of the Planning Area are now served by public sewers, there remain areas (such as the Walker Point/Indianola area) with high densities of onsite systems and ongoing concerns for groundwater quality. In addition, some areas with soils known to have failings for onsite waste disposal are both unsewered and experiencing increasing development; the areas of greatest concern are probably the Freshwater Valley and the Ole Hansen Road areas northeast of the city and the Upper Elk River Valley area to the southeast.

SOILS

Soil is a complex of both inorganic and biological components. It is formed as a product of parent material, topography, climate, and biological activity. Soil affects natural resources values, most land uses (particularly agriculture), building foundation design, and water quality (i.e., waste disposal) and supply (i.e., wells). Soils in the Planning Area have not yet been classified and mapped according to current criteria. Existing soil classifications and descriptions are based on the Agricultural Soil Survey of McLaughlin & Harradine (1965) and the Cooperative Soil-Vegetation Surveys of the Department of Agriculture. Based on these sources, there are three basic types of soils in the Planning Area, younger depositional soils, older terrace and forestland soils, and undeveloped or poorly developed soils, as discussed in the following paragraphs.

YOUNGER DEPOSITIONAL SOILS

Several soil series in the Planning Area have formed on depositional sediments of recent origin. These are the Bayside, Loleta, and Russ series of McLaughlin & Harradine (1965). Bayside soils are characteristically found in diked former tidelands, are fine-grained, and generally are poorly drained. They are widespread in the lowlands northeast and south of the city. Figure 9-4 shows the soil types of the Planning Area.

Russ soils are associated with near-stream deposition, and are coarser and better drained than the Bayside or Loleta soils. Large areas of Russ soils occur along the courses of major streams, such as Freshwater Creek and the Elk River. Loleta soils are uncommon in the Planning Area. They are found in alluvial valleys between the Russ soils and the depositional former saltmarsh Bayside soils, such as just southeast of the Three Corners area. Soils in these series are common in agricultural (grazing) lands. They do not function well for onsite wastewater disposal or for water supply (especially Bayside soils).

OLDER TERRACE AND FORESTLAND SOILS

A number of soil series in the Planning Area represent the results of in-place soil formation on sediments that have been eroded or which represent ancient depositional areas, and which characteristically were covered by forests and/or grasslands under undisturbed conditions. In the Planning Area these include large regions of Hookton, Larabee, Empire, and Hely soils, and some limited areas of Rohnerville and Arcata soils.

The Larabee, Empire, and Hely soils (the Larabee-Mendocino group described in Shapiro & Associates 1980) represent in-place soil formation on the Hookton Formation and Franciscan Formation slopes in the higher elevations of the Planning Area. Most areas inside the city limits have not had their soils classified or mapped. By extension from regions outside the city, most soils inside the city likely would be Larabee and Empire soils. Hookton soils represent soils developed by in-place weathering on depositional surfaces of the Hookton Formation. Hookton soils usually occur in a band below the eroded slopes and above the younger lowland depositional soils. The small areas of Arcata and Rohnerville soils are confined to the upper elevations on Humboldt Hill. Both developed on relatively level sediments of secondary origin. The soils in these series are good soils for forest production, agriculture, and urban use. In fact, such soils have been identified by many foresters as the best in the world for growing trees. On steep slopes, however, they are subject to rapid erosion if left unvegetated and exposed to rainfall.

UNDEVELOPED OR POORLY DEVELOPED SOILS

Within the General Plan Planning Area are areas of sand dunes and coastal marshes. Soils in these areas may be poorly developed or, occasionally in very old, forested dunes, moderately well developed. Soil-forming processes in these environments are usually affected by regular, periodic, or occasional disturbances that delay the accumulation of organic matter or alter the chemistry with respect to typical soil. These soils present special circumstances to plants and animals occupying the habitats on the soils. Not surprisingly, several of the special-status species in the Planning Area usually are restricted to such soils.

AGRICULTURAL AND TIMBERLAND RESOURCES

AGRICULTURE

Commercial agriculture in the Planning Area is limited almost entirely to grazing, primarily on the farmed wetlands (diked former tidelands) northeast and south of the Eureka terrace. There are, however, small commercial orchards in Mitchell Heights and the Upper Elk River Valley. In addition, commercial "boarding" for domestic animals (especially horses) is provided near the fringes of the developed regions. Figure 9-5 shows agricultural lands and timberlands in the General Plan Planning Area.

The area designated in Figure 9-5 as agricultural is based on existing land use designations for farmed wetlands and other agricultural land uses in City and County zoning maps. In addition, minor areas of grazing land were added on the basis of 1992 aerial photography of the Planning Area. These minor additions typically represent agricultural uses in lands designated for other purposes, and may not be part of the Planning Area's permanent agricultural land base.

Most grazing animals are beef cattle. The farmed wetlands near Humboldt Bay mostly provide summer grazing for these animals, although the availability of summer forage is essential to the success of the ranchers. The Elk River Valley includes dairy operations, however, which require year-round grazing or the production or purchase of hay for winter feed. The farmed wetlands within the Planning Area are therefore part of viable agricultural operations which include rangelands far from the coast as well as locally owned operations.

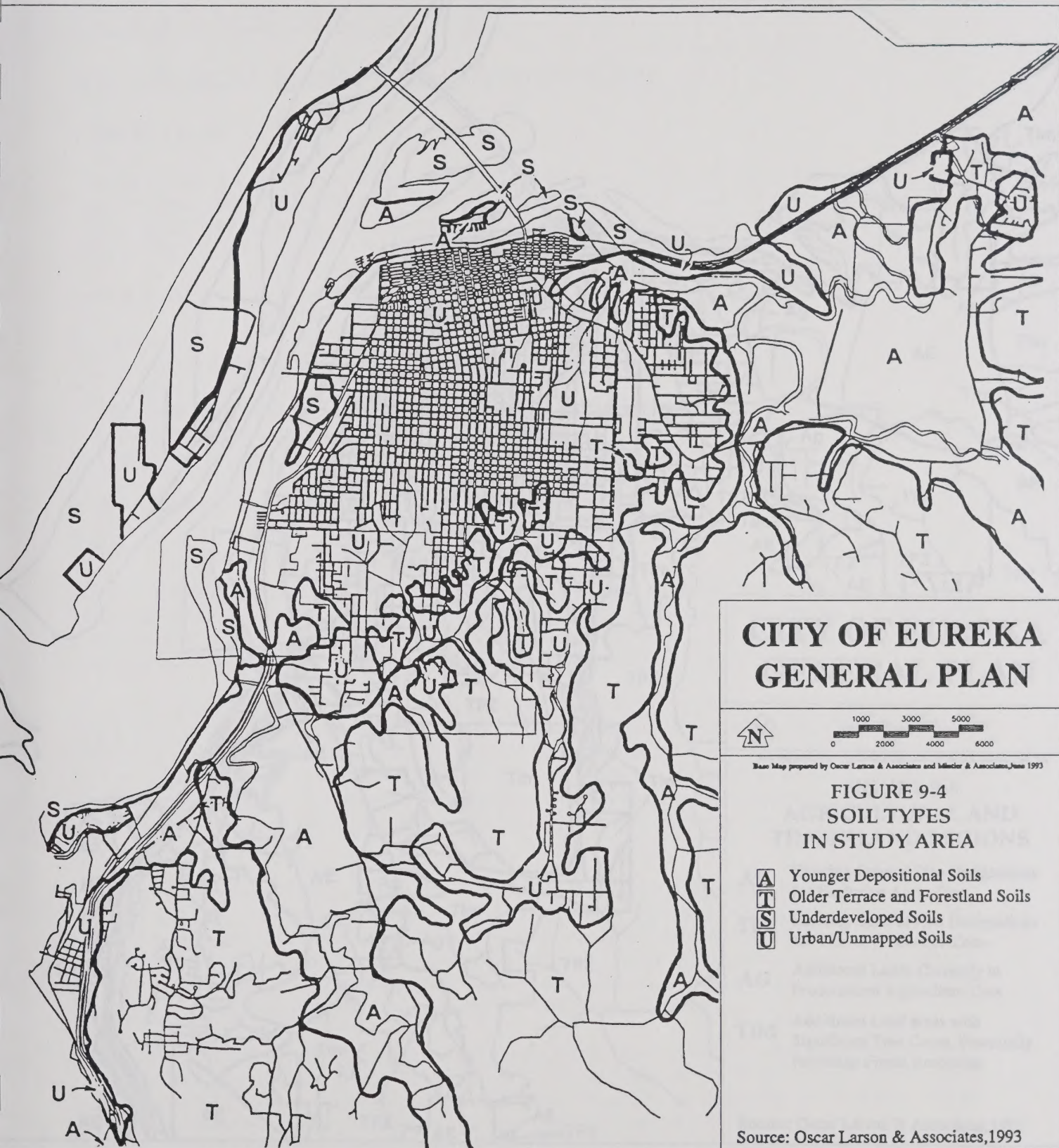
The local coastal programs of both the City and the County require protection for coastal agriculture, reflecting the requirements of the Coastal Act. The adopted policies and standards are based in part on "prime soils" and references to Storie Index values. The soil classification in McLaughlin & Harradine (1965) is, however, not fully consistent with current soil classification practices; it may be necessary to reclassify the soils as other than prime. The City's certified LCP designates all soils in the City's Coastal Zone as "non-prime" soils. In spite of this designation, the goals of protecting agriculture remain valid and may be tied to other non-soil objectives (such as open-space preservation).

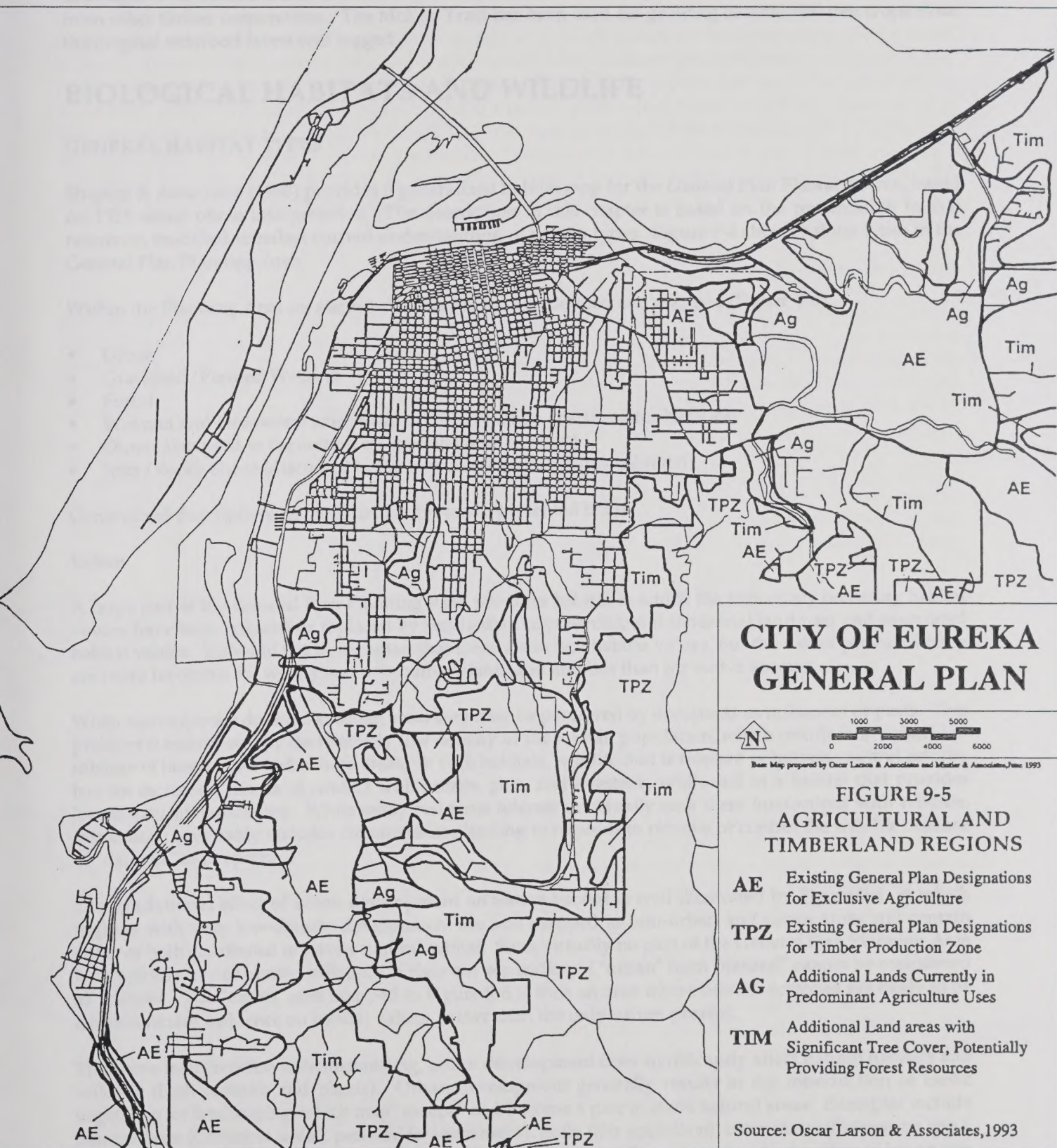
AQUACULTURE

Aquaculture may be defined as a form of agriculture that uses an aquatic medium to produce food (usually animals) otherwise acquired by harvesting wild organisms. Humboldt Bay supports a thriving and important aquaculture industry. An introduced species, the Pacific oyster (*Crassostrea gigas*), is grown in Arcata Bay, beginning at the northern edge of the Planning Area. Historical production figures (see Shapiro and Associates 1980) indicate an annual harvest of almost 400,000 kilograms (about 900,000 pounds) of oyster flesh, worth about \$1.7 million. Current values for the oyster crop probably exceed these historical values. The harvested oysters are processed at a plant in Eureka at the west end of the Inner Reach channel. A smaller oyster-growing commercial venture utilizes suspended racks or nets in the Samoa channel just north of the Samoa Bridge.

TIMBERLAND

The eastern part of the General Plan Planning Area includes timber-producing lands that are part of the commercial timber industry. The map in Figure 9-5 is based on the extent of land zoned for timber production; it is presumed that the "TPZ" designation represents a commitment to retain the land in timber production for at least the next decade. Figure 9-5 also includes non-TPZ timberlands. These are areas that had an extensive timber cover in 1992 aerial photos, but which are not zoned TPZ. Such areas can be presumed to contribute to the regional sawlog supply, but may be available for conversion to other land uses.





The primary timberland region in the General Plan Planning Area is the McKay Tract, in the Ryan Creek drainage. This extensive area is owned by the Louisiana-Pacific Corporation, acquired through purchase from other timber corporations. The McKay Tract has been used for growing commercial tree crops since the original redwood forest was logged.

BIOLOGICAL HABITATS AND WILDLIFE

GENERAL HABITAT TYPES

Shapiro & Associates (1980) provides a generalized habitat map for the General Plan Planning Area, based on 1978 aerial photo interpretation. The description in this chapter is based on the presentation in that reference, modified to reflect current understanding of habitat types. Figure 9-6 shows habitat types in the General Plan Planning Area.

Within the Planning Area six major habitat types may be defined and mapped (Figure 9-6):

- Urban
- Grassland/Farmed Wetland
- Forest
- Wetland and Deepwater (discussed in the section on special-status habitats)
- Dune (discussed in the section on special-status habitats)
- Jetty/Rocky Shore (discussed in the section on special-status habitats)

Generalized descriptions of these habitat types are presented below.

Urban

A large part of the General Plan Planning Area provides habitat in which the previously occurring habitat values have been reduced or replaced by residential, commercial, and industrial land uses and associated habitat values. It should not be assumed that these areas lack habitat values, but the values provided often are more favorable for weedy and non-native plants and animals than for native species.

When native species do occur in urban areas they may be perceived by occupants as nuisances or pests. This problem is exacerbated by the relatively low density of the human population, which results in a "suburban" mixture of human uses and natural areas. In such habitats, wildlife that is tolerant of human use and activity has an increased chance of contact with homes, pets, and livestock, while still in a habitat that provides "semi-natural" conditions. While many residents tolerate or actually seek these interactions with wildlife, this context invariably includes circumstances leading to requests to remove or control the wildlife because of "damage" to property.

The gradational effect of urban development on native habitat is well illustrated by Figure 9-6, in which regions with very low-density development are still mapped as non-urban and urban areas still contain either or both distributed or patchy natural habitat. Since virtually no part of the General Plan Planning Area is completely free of human influence, a rigorous separation of "urban" from "natural" cannot be considered as realistic. The "urban" area mapped in Figure 9-6 is thus an area where human activities are likely to be a predominant influence on habitat values, rather than the only values present.

The above interpretation notwithstanding, urban development does significantly affect natural habitats and wildlife (both animals and plants). Urban development generally results in the introduction of exotic vegetation for landscaping, which may "escape" and become a pest in more natural areas. Examples include pampasgrass (*Cortaderia jubata*), periwinkle (*Vinca major*), holly (*Ilex aquifolium*), cotoneaster (*Cotoneaster* spp.), English ivy (*Hedera helix*), and gumtree (*Eucalyptus* spp.). Among domestic animals, the effect of house cats

(*Felis domesticus*) on native populations of small birds and small mammals is well known. Controlling urban development may be required in areas in which protecting native habitat values is a management goal.

[Note regarding taxonomy: the identification of plant species in this chapter is based on the new taxonomic treatment in the Jepson Manual (Hickman 1993). Some readers with previous exposure to plant names in the Planning Area may find some species' identifications initially confusing. The revised taxonomy is not fully consistent with the California Native Plant Society's (CNPS) Inventory of "sensitive" species (Smith and Berg 1988); CNPS is currently revising its Inventory. One significant result of the taxonomic revision is that a population of plants in the Planning Area formerly considered to have special status under state and federal law has been redefined as part of a more widespread species; the "Humboldt Bay gumplant" (*Grindelia stricta* var. *stricta*) is no longer included in the listing maintained by the California Natural Diversity Data Base.]

Grassland/Farmed Wetland

While Shapiro & Associates (1980) identified "Agriculture" and "Grassland" as separate habitat types, such a distinction is not consistent with wildlife usage. Grass-vegetated sites throughout the Planning Area (except salt-marsh plains; see below) have the same general complement of species and are best conceived as a "Perennial Grassland" habitat type, as defined by the Wildlife/Habitat Relationship (Program W/HR; Mayer and Laudenslayer 1988), if they are not mowed or grazed, and "Pasture" if they are mowed or grazed.

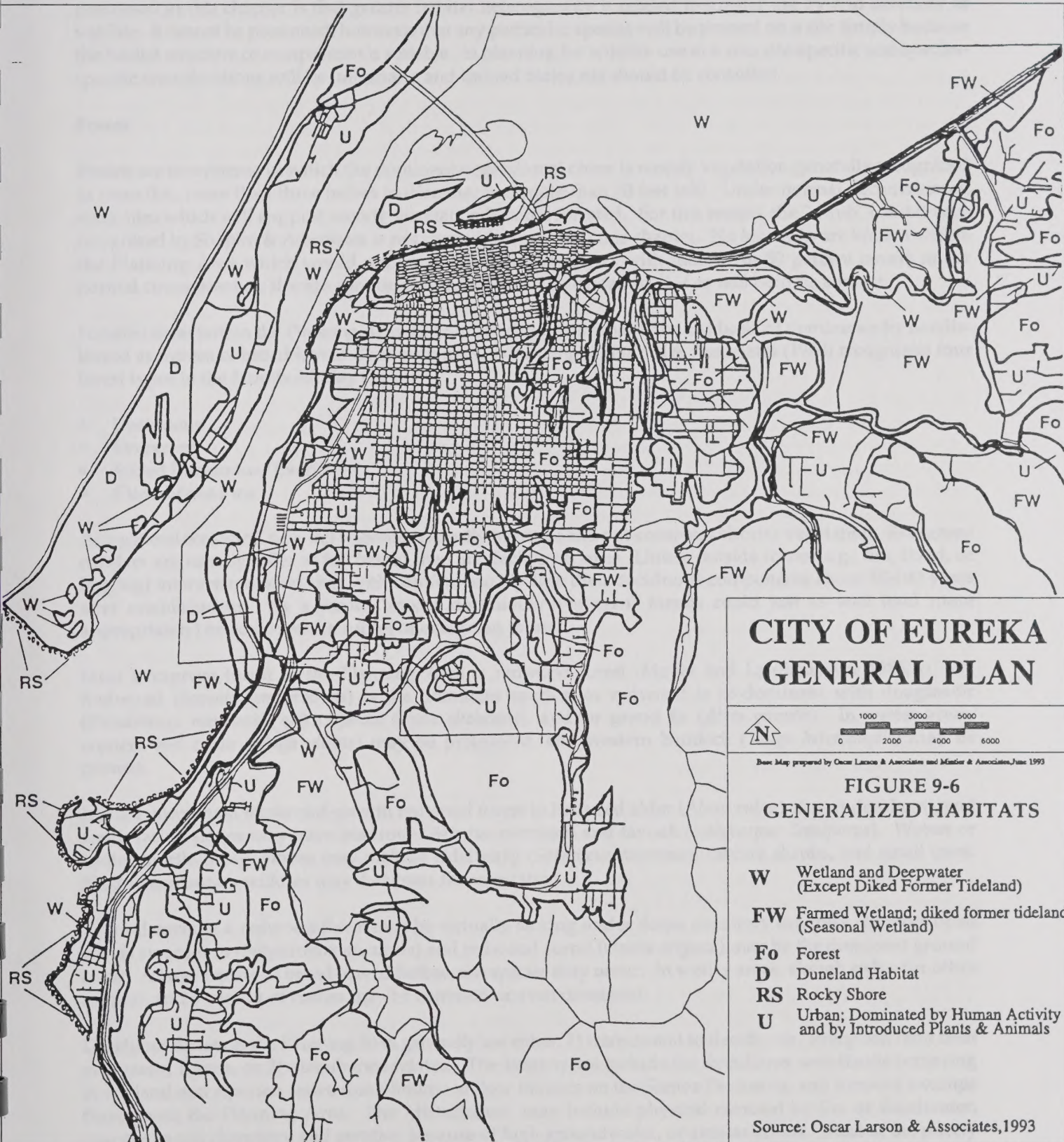
The dominant vegetation in these grass-dominated habitats usually ends up to be velvetgrass (*Holcus lanatus*), vernalgrass (*Anthoxanthum odoratum*), and any of a number of other species, depending on location and site history. Fescue (*Festuca*) species, orchardgrass (*Dactylis glomerata*), and one or more ryegrass (*Lolium*) species are common. Redtop (*Agrostis alba*) and reed fescue (*F. arundinacea*) are common components in farmed wetlands. Water foxtail (*Alopecurus geniculatus*) may dominate very wet sites.

The grasses commonly co-occur with herbaceous broadleaved forbs, such as one or more *Hypochaeris* (false dandelion) species, English plantain (*Plantago lanceolata*), and one or more trefoil (*Lotus*) species. The variety of forb species that occur in grasslands is considerable, and is only partly dependent on degrees of wetness. In wet pastures, silverweed (*Potentilla anserina*) and creeping buttercup (*Ranunculus repens*) are common in mowed/grazed areas; taller vegetation generally lacks the shorter-statured forbs.

Most pastures in the Planning Area at nearly all elevations have rushes (*Juncus*); the most common is soft rush (*J. effusus*), although several other species may be found. Other narrow-leaved monocots include spike-rush (*Eleocharis*) and sedges, especially slough sedge (*Carex obnupta*).

The pastures invariably are colonized by low-growing woody vines and shrubs. Blackberry (*Rubus ursinus*) is virtually ubiquitous; himalayaberry (*R. discolor*) is favored in disturbed areas. Coyotebrush (*Baccharis pilularis*) usually colonizes mounded soil and levees. If parents occur nearby, wild rose (*Rosa nutkana*) may colonize near moist areas. In very wet areas, cascara (*Rhamnus purshiana*) is a common colonist, and willows [*Salix* spp., especially arroyo willow (*S. lasiolepis*)] may invade.

Wildlife (animals) found in grassland depend on habitat structure and management. Species that may occur in grasslands are listed in the appendices to the Shapiro report, and listings may be generated by the Wildlife/Habitat Relationships database; such listings are not very useful, however, except as suggestions about species that should be sought on any particular site. The point that should be understood from a planning perspective is that if the habitat structure is suitable for a species, and if the species is able to reach the site, then there is a fair likelihood that the species will occur on the site. For example, pastures with tall, rank vegetation are not suitable habitat for waders such as shorebirds (Scolopacidae) or plovers (Charadriidae), but are desirable habitat for voles (*Microtus* spp.). If those pastures are mowed and grazed, the value for voles decreases and the value for waders increases. If the short-grass pasture is partly flooded during winter, it is not a good habitat for voles, but it becomes excellent habitat for the waders.



This sort of relationship between habitat structure or composition and use by particular wildlife species is a general result, and will be presumed in the balance of this chapter. A second general relationship presumed in this chapter is that greater habitat heterogeneity is related to greater use by and diversity of wildlife. It cannot be presumed, however, that any particular species will be present on a site simply because the habitat structure or composition is suitable. In planning for wildlife use at a site, site-specific and species-specific considerations will be important, and trained biologists should be consulted.

Forest

Forests are ecosystems in which the dominant vegetational cover is woody vegetation generally recognized as trees (i.e., more than three inches in diameter and more than 20 feet tall). Under normal circumstances, most sites which will support woody vegetation become forested. For this reason, the "shrub" habitat type recognized by Shapiro & Associates is not carried forward into this chapter. No locations are known within the Planning Area which would remain shrub-dominated (i.e., with more than 50 percent cover) under normal circumstances; if a site supports abundant woody vegetation, it is or will become a forest.

Forested areas within the Planning Area differ in appearance, primarily on the basis of dominance by needle-leaved evergreen or broad-leaved deciduous trees. For example, Shapiro & Associates (1980) recognized four forest types in the Humboldt Bay region:

- Deciduous
- Evergreen
- Mixed Deciduous/Evergreen
- Closed-cone Pine

As a general ecological rule, tall vegetation usually overtops and out-competes shorter vegetation. Evergreen conifers are usually taller at full height than are deciduous trees. Unless outside forces (e.g., fire, flood, or logging) intervene, coastal sites with conifers usually lose their deciduous components about 80-100 years after establishment. As a result, "mixed deciduous/evergreen" forests could just as well (and more appropriately) be considered a subset of evergreen forest.

Most evergreen forest in the Planning Area is redwood forest (Mayer and Laudenslayer 1988, p. 60). Redwood (*Sequoia sempervirens*) is the dominant species, or redwood is co-dominant with douglas-fir (*Pseudotsuga menziesii*), sitka spruce (*Picea sitchensis*), and/or grand fir (*Abies grandis*). In wetter areas, western red cedar (*Thuja plicata*) may be prominent, and western hemlock (*Tsuga heterophylla*) may be present.

It is not uncommon for second-growth redwood forest to have red alder (*Alnus rubra*) as a co-dominant, and south-facing slopes may have madrone (*Arbutus menziesii*) and tanoak (*Lithocarpus densiflorus*). Wetter or cooler (north-facing) slopes may include elderberry (*Sambucus racemosa*), cascara shrubs, and small trees. Near watercourses willows may dominate the vegetation.

Ground cover in a redwood forest may be virtually lacking under dense overstory canopies. In more open stands sword fern (*Polystichum munitum*) and redwood sorrel (*Oxalis oregona*) may be the dominant ground cover. A large variety of broad-leaved herbaceous species may occur. In wetter areas, slough sedge (or other sedges), and a variety of rushes may be common or even dominant.

Deciduous forests in the Planning Area generally are either: 1) transitional to deciduous/evergreen (and then evergreen) forests, or 2) disturbance-related. The latter types include the deciduous woodlands occurring in wetland and riparian areas, dune-hollow willow thickets on the Samoa Peninsula, and forested swamps throughout the Planning Area. The "disturbance" may include physical removal by fire or floodwater, changes in soil chemistry and aeration because of high groundwater, or similar effects. Most of the purely deciduous forests are wetlands and are discussed below. The dominant species in most deciduous forests

may be alder, but the most common species is arroyo willow. Two other common willow species occur in the Planning Area's deciduous forests: pacific willow (*S. lucida* ssp. *lasiandra*) and sitka willow (*S. sitchensis*). Hooker willow (*S. hookeriana*) is restricted to the Samoa Peninsula. The largest individuals in these forests are the few black cottonwoods (*Populus balsamifera* ssp. *trichocarpa*).

Closed-cone pine forests are restricted to the Samoa Peninsula within the Planning Area; the forest north and west of the peninsula terminus of the Samoa Bridge is part of a larger forest tract extending to McKinleyville. These forests are rather open-canopied, short-stature forests dominated by shore pine (*Pinus contorta* ssp. *contorta*). This species is tolerant of the dry, nutrient-poor characteristics of the dune environment. Where the ground surface is relatively close to groundwater, sitka spruce and grand fir are present.

Wildlife (animal) species occurring in forest habitats depend on both habitat structure and complexity and on the specific types of vegetation present. More structurally complex forest habitats universally have more species than do simpler habitats, and the species richness is cumulative as the complexity increases. There is a relationship between the "form" of the habitat and its utility for wildlife; a wildlife species may be present when suitable habitat is present, but it does not usually occur if habitat of the proper "form" is not present. Structurally complex forest habitats appear to present the necessary "form" for more wildlife species than do simpler habitats.

Many wildlife species also respond to vegetation type. That is, evergreen conifers are not the same as broad-leaved deciduous trees. A forest with both kinds of vegetation will usually contain more species than a forest of equal structural complexity but lacking one or the other kind of vegetation. Some wildlife species found in forests require special habitat elements, such as snags, logs, rocky areas, or caves (see Thomas and others 1979 for a discussion of these requirements). Some species require a proximity to streams, springs, seeps, or another form of watercourse. As with other aspects of wildlife use, management or prediction of wildlife use in forestlands should involve consultation with trained biologists.

SPECIAL-STATUS HABITATS

The General Plan Planning Area includes two broad categories of habitat types that are considered sensitive by many members of the public and by many regulatory agencies. These areas are likely to be burdened with developmental constraints; such constraints are already indicated in the certified Local Coastal Programs of both the City and the County. Beyond the established policy basis is an emerging concern for regional and hemispheric biological diversity, in which parts of the Planning Area play a role.

Wetlands and Deepwater Habitats

Wetland and deepwater habitats make up the majority of the special-status habitats in the General Plan Planning Area. The "Water Resources" section earlier in this chapter identified significant portions of the Planning Area as wetlands and deepwater areas (see Figure 9-3). This section expands the definitions of the habitats, briefly explains the wetland habitat values associated with the habitats, and provides more detailed habitat mapping (Figure 9-6). Small areas of some wetland types may not appear in Figure 9-6 because of the map scale. In addition, no map used for planning purposes can be considered adequate for regulatory or jurisdictional purposes; site-specific surveys by qualified personnel are required for those purposes.

Wetlands and deepwater areas may be classified in several ways. The most commonly used classification system for wetlands is that of Cowardin and others (1979), which is the system used by the USFWS for the National Wetland Inventory (NWI). The NWI process places wetlands into one of five "systems," each of which contains two or more "subsystems," each of which contains two or more "classes." Most classes have two or more "subclasses;" a series of "modifiers" are available for salinity, duration of inundation, vegetation type, and other such factors. The General Plan Planning Area completely lacks wetlands classifiable in the Lacustrine system (pertaining to lakes). A second system, the Marine system, is represented in the Planning Area by two wetland types; this system refers to ocean-exposed wetlands. The Riverine system (pertaining

to in-channel river wetlands) is represented by one or two types. A number of Planning Area wetland types occur in the Estuarine system, and an even larger number in the Palustrine system (which includes all wetlands not assignable to any of the other four systems). Because the NWI classification is widely used, an appropriate NWI code is presented for each wetland identified in this section. In addition, NWI maps for Humboldt Bay already exist and may be obtained from the USFWS. Table 9-5 summarizes wetland types by NWI system and vernacular name for the General Plan Planning Area.

TABLE 9-5
SUMMARY OF WETLAND TYPES
General Plan Planning Area

NWI Code	NWI Description	Common Name in Planning Area
Marine System		
M2US	Marine intertidal unconsolidated shore	Beach.
M2RS	Marine intertidal rocky shore	Jetty; rip-rap.
Estuarine System		
E1UB	Estuarine subtidal unconsolidated bottom	Bay bottom; shallow and deep channels.
E1AB	Estuarine subtidal aquatic bed	Vegetated subtidal channels and bottom.
E2AB/ E2UB	Estuarine intertidal aquatic bed/unconsolidated bottom	Tidal flats; eelgrass beds.
E2US	Estuarine intertidal unconsolidated shore	Dike; levee; shoreline.
E2RS2	Estuarine intertidal rocky shore (rubble)	Rip-rapped shoreline.
E2EM1	Estuarine intertidal persistent emergent marsh	Saltmarsh.
Riverine System		
R1UB/ R2UB	Riverine unconsolidated bottom, tidal/lower perennial	Unvegetated river bottom or stream bottom.
R1AB/ R2AB	Riverine aquatic bed, tidal/lower perennial	Vegetated river bottom or stream bottom.
Palustrine System		
PUB	Palustrine unconsolidated bottom	Cutoff slough streams; major drainage channels; seasonal creeks; unvegetated beds and flowing water.
PAB	Palustrine aquatic bed	Vegetated seasonal creekbeds and major drainage channels with flowing water.
PEM1	Palustrine persistent emergent	Brackish and fresh emergent marshes with persistent vegetation; some dune hollows.
PEM2E	Palustrine seasonal/nonpersistent emergent	Farmed wetlands; diked former tidelands.
PSS	Palustrine scrub-shrub	Some dune hollows [with woody vegetation <6 m (20 feet) tall].
PFO1/4	Palustrine forested deciduous/coniferous	Floodplain riparian forests; swamps; some dune hollows [with woody vegetation >6 m (20 feet) tall].

Sources: National Wetland Inventory; Oscar Larson & Associates.

The General Plan Planning Area includes two types of Marine system wetlands. The beach zone below the elevation of mean high water is considered to be a marine intertidal unconsolidated-shore wetland (NWI code M2US). The rock rip-rap and dolosse at the end of the spit and the jetty (on the ocean side) are marine intertidal rocky shore wetlands (NWI code M2RS). The rock rip-rap at the end of the Samoa Peninsula, north of the PG&E plant at Spruce Point, on the King Salmon breakwater, and elsewhere along the Eureka shoreline constitutes a unique habitat type. As noted previously, below the elevation of extreme low water spring, the shorelines are considered as deepwater areas rather than wetlands; regulations affecting uses in these areas are, however, essentially identical to those for wetlands.

The marine wetlands generally lack vascular plants. The plants that are present are macroalgae, attached to the rocks in the jetty. It is not uncommon, however, for the beach to be littered with macroalgae broken free from offshore holdfasts by winter storms. The animals present in these marine wetlands are adapted for this high-energy environment, often by burrowing into the sand or by firm attachment to the jetty rocks. These communities are included among those described in Boyd and DeMartini (1977).

Tidal areas within Humboldt Bay are wetlands in the Estuarine system. For convenience, the deepwater areas within the bay are usually considered to be subtidal estuarine unconsolidated-bottom wetlands (NWI code E1UB). Bottom sediment sizes depend on the energy present in flowing tidal currents. Deep channels have high current velocities and are usually sandy. As the channel size decreases, the channel-bottom sediments get finer. Outside of channels, the bay bottom sediments generally are very fine-grained silt and clay muds. The subtidal part of the bay generally lacks rooted vegetation, but provides excellent habitat for many invertebrate animal species. The water column above the bottom sediments is an organic soup of detritus, planktonic algae, and small invertebrates, and estuarine waters are among the most productive ecosystems in the world.

The subtidal bottom continues upward to form the intertidal bay bottom. The parts of Arcata Bay and South Bay within the Planning Area contain extensive "mudflats," which are fine-sediment intertidal wetlands. The flats are universally covered with diatoms, other microalgae, and red and green macroalgae; the flats usually appear colored because of this algal cover, and the wetland classification most appropriate is algal intertidal aquatic bed (NWI code E2AB1). Many of the flats also support extensive eelgrass (*Zostera marina*) stands, where the appropriate NWI code is E2AB3. "Entrance Bay" is the part of Humboldt Bay approximately from King Salmon to the Samoa Bridge. Because it is more energetic than Arcata Bay and South Bay, it has only fringing mudflats, located along its east and west sides and around Indian and Woodley Islands.

The bottom slopes rapidly upward at the sides of Entrance Bay to form a shoreline. The part of the shoreline subject to tidal flooding (to the elevation of mean high water) is intertidal wetland. Appropriate NWI codes are E2US or E2AB for muddy shorelines and E2RS2 for rip-rapped areas. In addition, some shorelines are fringed with saltmarsh, with the NWI code E2EM1. Saltmarshes in the Planning Area are dominated by Chilean cordgrass (*Spartina densiflora*) and pickleweed (*Salicornia virginica*). At progressively higher elevations the salt content of the water is reduced by rainwater, and other plant species may appear, including jaumea (*Jaumea carnosa*), arrowgrass (*Triglochin maritimum*), orache (*Atriplex triangularis*), saltmarsh bulrush (*Scirpus robustus*), tufted hairgrass (*Deschampsia cespitosa*), and gumplant (*Grindelia stricta* var. *stricta*). Many of these high-marsh species occupy a "high marsh plain," which is the original surface of saltmarsh in Humboldt Bay.

The Humboldt Bay estuary provides habitat for an astounding diversity of animal species (see the references cited at the end of this chapter). Invertebrate animals occur in extremely high densities in suitable habitats (see, for example, Roberts and Bott 1986), and invertebrate diversity results in part from the variety of habitat types present. Vertebrates (fish, birds, and mammals) occur in high diversity in part because of the abundant invertebrates. These factors combine to make the Humboldt Bay estuarine ecosystem an area of special status.

The productivity of the estuary results in part from the addition of freshwater, provided by rainfall and by inflow from rivers and streams. The rivers and streams provide the third wetland system present in the Planning Area, the Riverine system. This system is restricted to the bed of free-flowing rivers and streams by definition; it does not include streams separated from free-flowing rivers by culverts with flapgates. Elk River, the upper part of Eureka Slough, Ryan Slough, and Freshwater Slough are riverine wetlands. Through most or all of their length in the Planning Area, the larger watercourses are tidal; that is, the water level in the watercourse depends on tidal stages. These watercourses are not part of the estuary, because saltwater does not reach as far upstream as the extent of tidal influence. Most of the channel bottoms in these wetlands are unvegetated, and the appropriate NWI code is R2UB; where the bottoms have rooted plants or attached algal growth, the NWI code is R2AB.

The General Plan Planning Area includes a large area of wetlands that is not included in any of these three wetland systems; these other wetlands are part of the Palustrine system. The largest areas of palustrine wetland are the farmed wetlands northeast and south of the city. Technically these areas are seasonal nonpersistent emergent marshes (NWI code PEM2E).

A second type of emergent marsh exists within the Planning Area: a persistent emergent wetland (NWI code PEM1). These marshes occur in former tideland areas with a more permanent water supply and have non-woody vegetation that does not die after one growing season and rapidly disappears. These marshes occur in the cutoff slough channels in farmed wetlands, in former saltmarsh areas that are now behind dikes and in the floodplains of sloughs where woody vegetation is lacking. Locations where these wetlands are prominent include the Palco/Maurer complex near Vigo Street; the "pocket marshes" in the Westside Industrial Area north of Del Norte Street; the relict saltmarshes near King Salmon and Fields Landing; and the floodplains of Martin, First, Second, and Third Sloughs. These marshes may occur in other areas where a dependable year-round water supply is available, such as the "dune hollows" on the Samoa Peninsula. These emergent marshes may (and many do) have high residual salt levels in their soils or may (rarely) receive salt-spray or immersion from the bay. In such cases, they may be termed "brackish marshes."

The vegetation in these emergent marshes may be highly diverse. Cattail (*Typha latifolia*) is a common dominant, as are slough sedge, small-fruit bulrush (*Scirpus microcarpus*), soft rush, water parsley (*Oenanthe sarmentosa*), and reed canary grass (*Phalaris arundinacea*). An invasive exotic, common reed (*Phragmites australis*) occurs in the Palco Marsh complex.

Freshwater emergent marshes usually accumulate peat soils, which gradually raise the soil surface until the marsh can be invaded by woody vegetation such as willows. This may initiate the conversion of the wetland to a scrub-shrub (NWI code PSS1) or forested (code PFO1) wetland dominated by broad-leaved deciduous species that cannot germinate and grow in the deeper water typical of emergent marshes. Eventually these woody species overtop the marsh and shade out the herbaceous species; the result is locally termed a "swamp" and is common in the slough courses draining the Eureka terrace, along the west side of Walker Point Ridge, in Fields Landing, and in isolated locations north of Samoa on the Samoa Peninsula. Vegetation in the swamps is often dominated by sitka spruces and red alders, which are tolerant of very wet soils and can out-compete the shorter willows (a swamp dominated by spruces would be NWI-coded PFO4).

Swamps (and their shrubby precursors) superficially resemble riparian forest found in relatively undisturbed floodplains (e.g., parts of Martin, First, Second, Third, and Freshwater Sloughs); indeed, these forested wetlands also receive the NWI codes PFO1 and/or PFO4, depending on dominant vegetation. Riparian forests, however, are dependent primarily on the subsurface water flowing through the root zone, rather than on surface inundation.

Wildlife use of General Plan Planning Area wetlands is correlated with habitat structure, and secondarily with water depth (i.e., some species are restricted to wetlands which have a free water surface above the soil). In general, wetlands with greater structural diversity host more wildlife species. Floodplain riparian forests, in fact, appear to be among the most important wildlife habitats in this part of California. For all habitats, the habitat value is proportional to productivity (i.e., the amount of organic matter produced annually per unit of area of habitat), and to the ability of the habitat to supply roosting and nesting or breeding locations, thermal protection, and refuge from predators. Wetlands are extremely productive, but the three-dimensional structure of the habitat is the key to the other values. Riparian forests have the high productivity of other wetlands, plus a structural complexity that provides a greater variety of habitat features than any other wetland type. A consideration of specific wildlife/habitat relationships in Planning Area habitats is beyond the scope of this report; a general consideration is provided in Mayer and Laudenslayer (1988), and a recent discussion of values provided by habitats similar in value to those in the Planning Area is provided in Roberts (1992). Management or prediction of specific wildlife use should involve consultation with trained biologists.

Dunelands

Dunelands constitute most of the non-wetland, special-status habitats in the Planning Area. These habitats are restricted to sandy shorelines and peninsulas in the Planning Area, and are generally restricted to the vicinity of shores everywhere. On the basis of total area, they are among the rarest habitats in North America.

The Samoa Peninsula, the Elk River Spit, the west side of King Salmon, and (to a lesser extent) the Eureka side of the Elk River "estuary" are dominated by natural communities adapted to survive in sand or extremely sandy soil. Owing to their rarity at local, statewide, national, and even global scales, these communities are considered special-status habitats. The Samoa Peninsula, as a feature which retains major aspects of its pre-settlement communities, is particularly sensitive. The environmental sensitivity of the Peninsula is well-documented, and has been summarized recently in the *Beach and Dunes Management Plan*. The following is a general description of important habitat types.

The *strand* is the beach area between the waterline and the base of the foredunes. It is unvegetated to sparsely vegetated, and usually contains no unique plant elements. It is, however, the nesting habitat for the federally threatened Snowy Plover (*Charadrius alexandrinus*; see next section).

Foredune communities extend from the back of the strand over low sand ridges to the "deflation plain," and contain some areas that are well vegetated and other areas that are sparsely vegetated. The plant community is generally called "dune mat," and is both a "rare" habitat and is the habitat for three plant species protected under the federal Endangered Species Act (see next section).

Interspersed among the foredunes and in the deflation plain are "dune hollows," some of which have been noted previously to function as wetlands. Vegetation may range from dune mat to freshwater marsh species, and the hollows can be colonized by pine forest species and become part of the closed-cone pine habitat.

Behind the deflation plain is an area of long-term sand accumulation. Normal ecological processes would stabilize the sand ridges with vegetative cover, but disturbances can result in bare sand dunes and ridges. If disturbance is absent for long enough, the dominant plant community asserts itself and closed-cone pine forest covers the dunes and ridges. Closed-cone pine forest has been recognized by Holland (1986) as a rare community in California, requiring further study about its long-term ability to survive.

Along its eastern margin, the Samoa Peninsula is adjacent to wetland types described above. Wetlands also occur within the habitats found on the peninsula.

BIOLOGICAL LINKAGES AND BIODIVERSITY

During the last decade a worldwide concern has emerged for the loss of biological diversity. The most obvious expression of this concern is the group of species listed under the auspices of the federal and state Endangered Species Acts. Although not yet recognized by law, there is also a growing concern about the loss of critical habitat components at geographical scales higher than the individual organism or population. For example, declines in the breeding-season abundances of neotropical migrant bird species have resulted in a rapidly intensifying effort to protect wintering habitats in the neotropics. The basic thrust of this field of "conservation biology" is to identify and protect critical habitats and habitat components for organisms throughout the entire geographical ranges used by the organisms.

The wetlands of Humboldt Bay have been identified as a critical ecosystem component in the international context of wetland-dependent migratory wildlife, particularly international migrant bird species in the Pacific Flyway, one of the four broad north-south migratory corridors in the United States. These wetlands have been identified specifically with reference to the following phenomena, although it is very likely that additional concerns will be identified in the future.

- Humboldt Bay wetlands are a significant staging and foraging site during migration for the Brant (*Branta bernicula nigricans*). An estimated 25 percent of the world population of this goose uses the eelgrass beds in Humboldt Bay during migration.
- Humboldt Bay's wetlands are a major staging and foraging area for shorebirds migrating along the Pacific Coast. It has been estimated conservatively that at least 1,000,000 shorebirds (including a number of species) depend on the invertebrate populations in Humboldt Bay's mudflats and seasonal wetlands. At least 100,000 shorebirds winter in the Humboldt Bay area, including essentially the entire population of the Aleutian subspecies of the Marbled Godwit (*Limosa fedoa beringae*). Humboldt Bay is second only to the San Francisco Bay - Point Reyes area in its importance to wetland-dependent migrants in California.

These factors arise in addition to the importance of local habitats for threatened or endangered species. For most of those species, the Humboldt Bay region is a major portion of the remaining habitat in the world.

SPECIAL STATUS COMMUNITIES, WILDLIFE, PLANT SPECIES

The Humboldt Bay region contains occurrences of community types given special status under State and/or Federal law. It contains many records of occurrence of plant or animal species protected by the Federal or State Endangered Species Acts. A listing and map locations for these occurrences were obtained from the California Natural Diversity Data Base (CNDDB) early in July 1993. A summary of the occurrences within the General Plan Planning Area is mapped in Figure 9-7. The occurrences are summarized briefly in this section. In addition, this section identifies other sensitive species known to occur in the Planning Area which were not listed by the CNDDB.

WILDLIFE

The CNDDB report provided occurrence records for seven animal species within the General Plan Planning Area. Several additional species listed under the state or federal Endangered Species Acts are known to occur within the Planning Area.

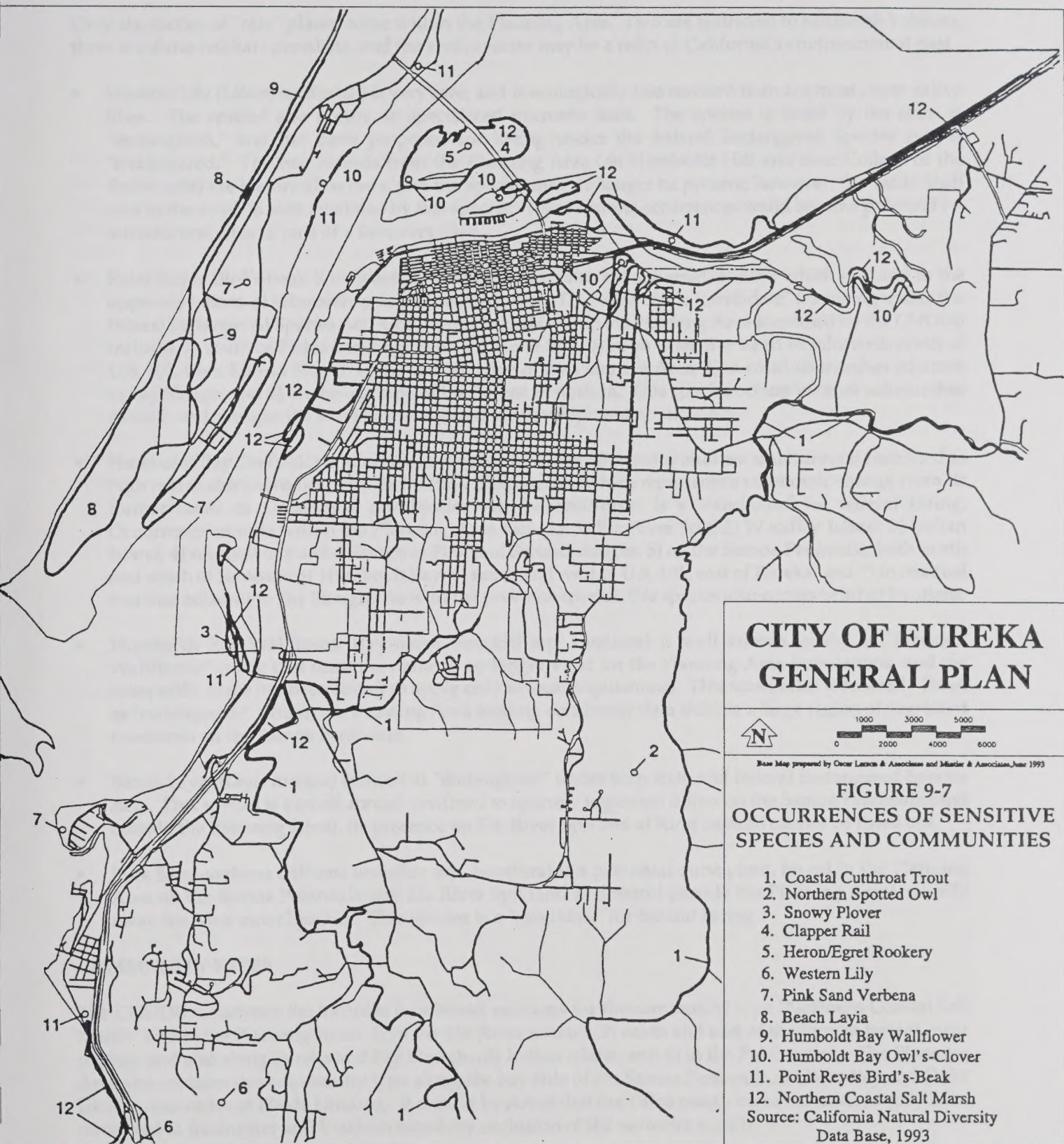
- Coastal Cutthroat Trout (*Oncorhynchus clarki*) is resident in many coastal stream basins from the Eel River delta northward to southern Oregon. This is a "species of special concern" for the State of California, but is not listed under either the state or federal Endangered Species Act. In the Planning Area, habitat is found in Elk River, Martin Slough, Ryan Creek, and Freshwater Creek.
- Western Snowy Plover (*Charadrius alexandrinus nivosus*) nests on upper beach areas, and is sensitive to effects of pedestrian and motorized traffic. This species is listed as "threatened" under the federal Endangered Species Act, and is a "species of special concern" for the State of California. The species has been recorded from the Elk River Spit within the Planning Area, and probably occurred in the past on the Samoa Peninsula. "Critical habitat" has not yet been designated.
- California Clapper Rail (*Rallus longirostris obsoletus*) is a resident species listed as "endangered" under both state and federal Endangered Species Acts. "Critical habitat" is coastal saltmarsh, and the species has been identified as occurring on Indian Island.
- Northern Spotted Owl (*Strix occidentalis caurina*) is a "threatened" species under the federal Endangered Species Act. The species is an inhabitant of older-age coniferous forests in northwestern California. The species has been recorded as occurring in the Ryan Creek basin and the Freshwater Creek basin.
- American Peregrine Falcon (*Falco peregrinus anatum*) is a winter resident in the Planning Area, where it preys on shorebirds, waterfowl, pigeons, and similar birds. The species is listed as "endangered" under

both state and federal Endangered Species Acts. Peregrine Falcons occur within the Planning Area each winter; they are dependent on suitable habitat for prey species. [Note that the Merlin (*Falco columbarius*), a state "species of special concern," also utilizes the Planning Area during winter.]

- California Brown Pelican (*Pelecanus occidentalis*) occurs in the Planning Area as a summer (post-breeding) visitor, where it depends on suitable habitat for its prey (fish). This species is listed as "endangered" under both federal and state Endangered Species Acts.
- Marbled Murrelet (*Brachyramphus marmoratus*) nests in older-age coniferous forests outside the Planning Area, but forages for small fish in near-shore waters, including areas inside Humboldt Bay and near the Samoa Peninsula. This species is listed as "endangered" by the state and "threatened" under the federal Endangered Species Act.
- Nesting locations (rookeries) for Great Blue Heron (*Ardea herodias*), Great Egret (*Casmerodius albus*), Snowy Egret (*Egretta thula*), and Black-crowned Night Heron (*Nycticorax nycticorax*) are a special concern of the state. A major rookery for all four species occurs on Indian Island.

In addition to these identified special-status species, several other species of concern occur within the General Plan Planning Area. Detailed information about these species will be required for any development proposals which could affect them or their habitat.

- Northern Red-legged Frog (*Rana aurora*) is a state "species of special concern" and a "candidate" for federal listing. This species inhabits wet floodplain marshes and forest, and should be found in suitable habitat in the Planning Area.
- Northwestern Pond Turtle (*Clemmys marmorata marmorata*) inhabits uplands near watercourses, ponds, and deep marshes. It is a state "species of special concern" and a "candidate" for federal listing.
- Cooper's Hawk (*Accipiter cooperi*) and Sharp-shinned Hawk (*A. striatus*) are forest-dwelling bird-hunters. They occur in the Planning Area, and probably nest within the Planning Area. Both species are state "species of special concern."
- Caspian Tern (*Sterna caspia*) nesting locations are a special concern to the state. A Caspian Tern nesting colony formerly existed on a sand island north of the Samoa Bridge, at the edge of the Planning Area. It is unknown whether the colony is still active.
- Vaux's Swift (*Chaetura vauxi*) is a "species of special concern" to the state. This aerial specialist nests in hollow trees (sometimes in chimneys), and is affected by developments which remove old, large, hollow trees and stumps from forested habitats.
- Tidewater Goby (*Eucyclogobius newberryi*) is a state "threatened" species and a "candidate" for federal listing. This fish occurs in Humboldt Bay and in tidal streams such as Elk River and Eureka Slough, although specific occurrence records have not been forwarded to the CNDDDB.
- White-footed Vole (*Arborimus albipes*) is an inhabitant of extensive stands of red alder, and probably occurs within the Planning Area in suitable habitats. This species is a state "species of special concern" and a "candidate" for federal listing.
- Osprey (*Pandion haliaetus*) nesting locations are of "special concern" to the state. The Osprey occurs in the Planning Area, and nests probably exist.



PLANTS

Only six species of "rare" plants occur within the Planning Area. Two are restricted to saltmarsh habitats, three are dune-habitat specialists, and the sixth species may be a relict of California's environmental past.

- Western Lily (*Lilium occidentale*) is very rare, and is ecologically less resilient than are most other native lilies. The species also occurs on specialized microsite soils. The species is listed by the state as "endangered," and has been proposed for listing under the federal Endangered Species Act as "endangered." The two records from the Planning Area (on Humboldt Hill and near College of the Redwoods) are historical records, and the species may no longer be present; however, the Table Bluff area to the south is well-inhabited by this species. These historic occurrences could become potential re-introduction sites as part of a Recovery Plan.
- Point Reyes Bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) is a small annual which is found in the upper elevations of saltmarshes near Humboldt Bay. This species is a "candidate" for listing under the federal Endangered Species Act. Occurrence records within the Planning Area identified by the CNDDDB include: 1) south of Fields Landing; 2) on Elk River Spit; 3) in an extensive band in saltmarsh north of U.S. 101, from Eureka Slough to the eastern edge of the Planning Area; 4) in residual marshes adjacent to Fay Slough; and 5) on the bay side of the Samoa Peninsula. This species occurs in other saltmarshes as well, and site-specific studies are required for development applications.
- Humboldt Bay Owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*) is another small annual restricted to high marsh elevations near Humboldt Bay. This species (which represents a taxonomic change from its former name of *Orthocarpus castillejoides* var. *humboldtiensis*) is a "candidate" for federal listing. Occurrence records within the Planning Area include: 1) Elk River Spit; 2) Woodley Island; 3) Indian Island; 4) adjacent to Eureka Slough at First and Second sloughs; 5) on the Samoa Peninsula, both north and south of Samoa near Humboldt Bay; 6) north and west of U.S. 101, east of Eureka; and 7) in residual marshes adjacent to Fay Slough. As with the previous species, this species also occurs in other locations.
- Humboldt Bay Wallflower (*Erysimum menziesii* ssp. *eurekaense*) is well known locally as "Menzies' Wallflower" (note: that common name is no longer valid for the Planning Area populations, and the subspecific name has been added to apply only to local populations). This subspecies is federally listed as "endangered." Within the Planning Area existing occurrence data include a large region of vegetated foredunes on the Samoa Peninsula.
- Beach Layia (*Layia carnosa*) is listed as "endangered" under both state and federal Endangered Species Acts. This species is a small annual, confined to sparsely vegetated dunes on the Samoa Peninsula (and outside the Planning Area); its presence on Elk River Spit and at King Salmon cannot be ruled out.
- Pink Sand-verbena (*Abronia umbellata* ssp. *breviflora*) is a perennial dune plant, found in the Planning Area on the Samoa Peninsula and Elk River Spit (and also found outside the Planning Area), usually away from the outer beaches. This species is a "candidate" for federal listing.

COMMUNITY TYPES

The CNDDDB occurrence list includes four broad locations for the community type "Northern Coastal Salt Marsh" within the Planning Area: 1) in the Elk River estuary; 2) north and east of the Eureka terrace, near the bay, and also along Eureka and Fay Sloughs; 3) Indian Island; and 4) in the Palco marsh. The Planning Area also contains this community type along the bay side of the Samoa Peninsula, on Woodley and Daby Islands, and south of Fields Landing. It should be noted that the Palco marsh occurrence has largely been converted to freshwater and brackish marsh by occlusion of the seawater supply.

The Natural Diversity Data Base does not at this time list other community types within the Planning Area which are considered to be especially important. A rational argument and considerable data may be advanced for including "Coastal Estuary" and "Coastal Dune Ecosystem" within the CNDDDB listing, for reasons presented earlier in this chapter.

AIR QUALITY

Air quality in the Planning Area is monitored by the North Coast Unified Air Quality Management District (AQMD). As is true for water quality, air quality is subject to regulatory standard-setting under federal and state Clean Air acts and several related laws, and both the federal and state governments have adopted air quality standards for some "criteria" pollutants. The AQMD monitors ambient air quality for the criteria pollutants; it also monitors a number of "noncriteria" pollutant concentrations (which lack federal or state standards) believed to have the potential for health effects or general nuisance effects. A summary of air monitoring data was published by the AQMD in March 1993.

Compliance with air quality standards for criteria pollutants is judged by "attainment" of the relevant state or federal standards. State air quality standards are more stringent than federal standards, and it is possible to attain federal standards and not attain state standards. If any standard is not met, the AQMD is said to be "non-attainment" for that standard. In some cases, insufficient historical air quality monitoring was conducted to classify the North Coast AQMD; in these cases the AQMD is "unclassified." According to the AQMD 1993 report, sufficient monitoring has now been completed, and the AQMD expects to have attainment status granted during 1993. The status of the AQMD for federal and state air quality standards for criteria pollutants is summarized in Table 9-6.

TABLE 9-6		
AIR QUALITY ATTAINMENT STATUS		
General Plan Planning Area		
1993		
Pollutant	Status With Respect to Federal Standard	Status With Respect to State Standard
Ozone	Unclassified (Attainment Status Expected)	Unclassified (Attainment Status Expected)
Carbon Monoxide	Unclassified (Attainment Status Expected)	Unclassified (Attainment Status Expected)
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Unclassified (Attainment Status Expected)	Unclassified (Attainment Status Expected)
Suspended Particulate Matter (PM10)	Attainment	Non-attainment
Sulfates	No Federal Standard	Unclassified
Lead	Attainment	Attainment
Hydrogen Sulfide	Unclassified (Attainment Status Expected)	Unclassified (Attainment Status Expected)
Vinyl Chloride	No Federal Standard	Attainment
Visibility Reducing Particulates	No Federal Standard	Unclassified*
Note: *Problems exist regarding measurement; may be in non-attainment status.		
Source: North Coast Unified Air Quality Management District		

Air quality in the Planning Area generally meets applicable standards. For pollutants with an unclassified status in Table 9-6, the AQMD expects to receive an attainment status in the near future. Given the expected results, the North Coast air basin will be in attainment for all federal standards for criteria pollutants. The North Coast also will be in attainment for all state standards except that for suspended particulate matter smaller than 10 microns (PM10).

The 1993 AQMD report summarizes PM10 as follows:

Suspended particulate is solid matter or liquid droplets from smoke, dust, fly ash, and condensing vapors that can be suspended in the air for long periods of time. The major sources of this pollutant include industrial processes, automobiles, woodsmoke from open burning and residential wood heating, dust from paved and unpaved roads, construction, and agricultural practices. Particulate matter under 10 microns in diameter (PM10) can affect breathing and respiratory symptoms, causing increased respiratory disease and lung damage and possibly premature death. Children, the elderly, and people suffering from heart and lung disease are especially at risk. Particulates can also damage paint, soil clothing, and reduce visibility.

In the General Plan Planning Area, it is likely that most of the suspended particulates result from smoke produced by wood-burning stoves. Regional meteorological conditions include frequent "inversions" in the Planning Area, especially during winter; these are conditions which trap air near the surface under a stable layer of warmer air above the surface. While the inversions are occurring, particulate levels in the air over the Planning Area build up. This phenomenon is known to occur in other locations in which wood-burning stoves are used extensively for home heating. In some western American cities, curtailments or total bans on the use of wood-burning stoves have been necessary to attain air quality standards for PM10.

A second pollutant related to PM10 is "visibility-reducing particulates." The State of California has adopted a standard for visibility reduction which is related to relative humidity (the amount of water vapor in the air with respect to the amount that the air is capable of holding). The conditions required to measure this parameter (relative humidity less than 70 percent) are seldom attained in the Planning Area, and it is very difficult to measure. The AQMD has opined that the Planning Area is likely to be in non-attainment (see the 1993 AQMD report).

Non-criteria pollutants measured at least once by the AQMD include:

- Total Reduced Sulfur Compounds - These are associated with the Kraft-pulp manufacturing process, and thus with effluent from the Samoa Peninsula pulp mills. No adverse health effects have been demonstrated to result from these emissions, although some people find them highly objectionable.
- Benzene - This carcinogenic compound is associated with gasoline vapor and combustion products. Moderate levels were detected near the Chevron tank farm in West Eureka.
- Formaldehyde - Produced by combustion and released from building materials, formaldehyde is a probable carcinogen. Measured formaldehyde levels have been relatively low.
- Chloroform - Produced as a byproduct of numerous processes that use chlorine, this compound also is a probable carcinogen. Low levels have been detected in the Planning Area.
- Acidic precipitation - The atmosphere is normally slightly acidic, but it may become significantly more acidic where atmospheric levels of sulfur and nitrogen oxides are elevated. Elevated precipitation acidity is associated with environmental damage to terrestrial and (especially) aquatic ecosystems. Very minor increases in acidity were found in the Planning Area.
- Toxic Air Contaminants - The AQMD has sampled for 12 other toxic compounds that may occur as air pollutants. Of these, two compounds (styrene and toluene) were detected at moderate levels near the Chevron tank farm in West Eureka.

As noted above, neither federal nor state air quality standards exist for these compounds. With the few noted exceptions, the AQMD sampling detected low or very low ambient-air concentrations for these compounds (see the 1993 AQMD report).

FINDINGS

- The General Plan Planning Area is blessed with abundant water resources, including surface water drainages, groundwater resources, wetlands, and a major coastal embayment and estuary. The quality of all of these water resources is very good in most areas, although some groundwater quality is impaired in areas with higher residential densities, where water has been contaminated by bacterial and nitrogen-rich wastewater.
- Study-area water resources are little-used for water supply purposes. Most of the Planning Area is supplied with water from the Mad River basin, ultimately provided by the Humboldt Bay Municipal Water District. Some groundwater is used for municipal services, extracted from wells in the Humboldt Hill area by the Humboldt Community Services District. In remote parts of the Planning Area, groundwater from individual wells is used for domestic supply; in many locations the groundwater produced by these wells is of poor quality because of contamination by on-site waste disposal systems.
- Much of the land area along Eureka's shoreline was historically tideland and submerged land. As tidelands and submerged lands were filled, they were subdivided, sold, and developed. Legally, however, the people of California own these lands. Where legal issues have not been resolved, owners of former tidelands seeking to sell or develop their property must negotiate with the City and State Lands Commission to remove the easement and either pay into the Eureka Tidelands Trust Fund or purchase and dedicate equivalent land. In the case of former submerged lands, lease payments must be made to the Eureka Tidelands Trust Fund.
- Significant contamination of groundwater by hydrocarbons and other chemical pollutants has occurred in part of the Planning Area, particularly along the northern city waterfront and west of Broadway.
- Some soils in the Planning Area (those in low-lying areas northeast and south of the city) are of recent origin and are not highly permeable; these soils have limits to their acceptability for development purposes. Most of these areas are in agricultural use and are seasonal wetlands.
- Many of the soils in the Eureka terrace and in the hills east of the city were derived by in-place weathering of native rocks. These soils are highly suitable for development purposes, and are also considered to be among the best soils in the world for growing trees.
- Agriculture is present in the Planning Area primarily as ranching and dairying operations using the seasonal wetlands in the lowlands northeast and south of the city. There are commercial orchards in the Ryan Creek and Elk River Valleys. In addition, there are many examples of stables, pasturage, and other maintenance of horses and other domestic stock in the less densely developed parts of the Planning Area.
- At the fringes of the Planning Area, most of the agricultural land carries planning designations consistent with long-term maintenance in agricultural use; closer to the city many agricultural areas have land use designations consistent with a transition to other uses.
- In addition to its importance for biological reasons, Humboldt Bay hosts a major aquaculture industry based on the bay ecosystem. Maintaining this industry will require continued attention to maintaining a healthy aquatic ecosystem, including pollutant reductions in waters flowing into the bay.
- Near the perimeter of the Planning Area are extensive areas of land designated for timber production. These lands are an important part of the timberland inventory in the area, and in the nation as a whole. There are other timberland areas, closer to the city, that have planning designations indicating that while it is currently forested, the land probably is available for development.

- The Planning Area includes a wetland complex of international importance. The Humboldt Bay ecosystem (including the surface watercourses and the seasonal wetlands) has been shown to be an important component in the Pacific Flyway, as well as one of the most important estuarine ecosystems on the west coast of North America. The Humboldt Bay ecosystem provides irreplaceable resources important in maintaining wildlife resources of international significance. The importance of maintaining these ecosystem functions must not be underestimated in the General Plan update process.
- The Planning Area includes wetlands in four distinct wetland categories: marine, estuarine, riverine, and palustrine. These include the deepwater parts of the Pacific Ocean and Humboldt Bay as well as the low-lying seasonal wetlands northeast and south of the city. These areas have been designated for protection in existing land use plans.
- The Elk River Spit, part of the King Salmon area, and most of the Samoa Peninsula provide environmentally sensitive duneland habitats.
- The General Plan Planning Area includes designated occurrences of six sensitive plant species and four sensitive wildlife species found in the Planning Area, together with known past use by at least three more sensitive species and suitable habitat for (and the probable occurrence of) at least eight additional species. One designated sensitive community type (northern coastal saltmarsh) occurs at several locations in the Planning Area.
- Air quality in the Planning Area is better than that in most developed parts of the state. The Planning Area appears to meet all federal air quality standards. The area appears to meet all state standards except that for suspended particulate matter (and possibly that for visibility-reducing particulates).

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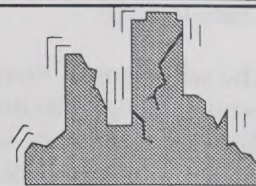
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CHAPTER 10

SAFETY



INTRODUCTION

This chapter discusses safety in the General Plan Planning Area, including seismic hazards, structural hazards and critical facilities, fire hazards, and flooding hazards. Some information in this report comes from previous plans and studies including the 1979 Humboldt County Seismic Safety and Public Safety Elements, which incorporate a detailed background report by Envicom Corp. in 1978; the 1982 Policy Background Study on Hazards for the Humboldt County General Plan Revision Program; the 1977 Eureka General Plan Human Safety Element and technical background report; and the Hazards chapter in the 1984 City of Eureka Local Coastal Program. Additional information was synthesized from the sources cited in the chapter.

This chapter is divided into eight sections. The first section describes the regional geological setting and discusses seismic hazards in the General Plan Planning Area. The second section discusses structural hazards and critical facilities. The third section summarizes fire hazards. The fourth section describes flooding hazards. The fifth section discusses toxic contamination of soil and groundwater. The sixth section is a set of findings related to safety in the General Plan Planning Area. Finally, the seventh and eighth sections list bibliographic references and persons consulted in the course of preparing this chapter.

GEOLOGICAL AND SEISMIC HAZARDS

REGIONAL GEOLOGICAL SETTING

The General Plan Planning Area lies within the region affected by the Mendocino triple junction, the area where three tectonic plates moving in different directions come together. In addition, the Planning Area is directly above the zone of fault contact between two of the plates, which are moving in opposite directions, causing one plate (the Gorda plate) to deflect under the other (the North American plate) and to be subducted into the earth's mantle.

The land surface on which most of Eureka lies is a depositional terrace called the Hookton Formation, of Pleistocene age (approximately the last 1.8 million years). The terrace lies on much older sediments, themselves of at least two distinctly different depositional ages. The oldest sediments are part of the Franciscan Formation, the basic structural component of the Coast Ranges, and about 100,000,000 years old. In the southeastern part of the Planning Area a slightly younger formation has been identified on the land surface (the Yager Formation), although the Yager Formation underlies the entire Humboldt Bay region below the surface. The Franciscan and Yager sediments were exposed to erosion and other geological forces for many millions of years before being submerged below sea level, where additional sediments were deposited above and in contact with them. These younger sediments are identified as the Wildcat Group, and are of Pliocene to early Pleistocene age (2,000,000 to 10,000,000 years old).

In the Planning Area, the Wildcat Group is represented by the Carlotta Formation in the Elk River Valley and Martin Slough and by "undifferentiated" Wildcat sediments in the eastern hills near Cummings Road. The Carlotta Formation is the youngest part of the Wildcat Group, and may be only hundreds of years older than the oldest sediments in the Hookton Formation. Both the Carlotta Formation and the Hookton Formation contain sediments of shallow-water or terrestrial origin, but there is an erosional interval separating the Carlotta and Hookton formations.

The sediments of Franciscan through Hookton ages have been subjected to erosion and deformation, and existing topography does not necessarily follow lithological contacts; rather, current landforms reflect terrain differences, climate, sea level, other factors, and even human influences. The older sediments have been eroded, and the eroded material produced recent (i.e., less than about 11,000 years old) sedimentary deposits, including the bay-bottom muds and silts, the muds of the diked former tidelands, and the sands of the Samoa Peninsula and Elk River Spit. These recent sediments are generally only a few tens of feet thick near Humboldt Bay.

Only one fault exists in the General Plan Planning Area, but there are numerous other faults near but outside the Planning Area. Many of these faults are active and capable of seismic activity (see below). Most of the faults are related to and/or derived from the presence of the Mendocino triple junction in the region. One fault near the Planning Area is probably not part of the current geological regime. The Freshwater Fault appears to be part of earlier geological regimes, and the mechanisms producing the fault may not be active now. Figure 10-1 shows the geology of the General Plan Planning Area.

Geomorphologically, the triple junction is a location where tremendous forces are coming into opposition. The collisional energy of the Gorda and North American plates (the Cascadia Subduction Zone) is combined with the energy-release potential of the North American and Pacific plates (the San Andreas Fault) and the collisional energy of the Pacific and Gorda plates (the Mendocino Fault). These tectonic interactions have resulted in secondary warping and faulting in the sediments along the coast northeast of the triple junction (i.e., in and adjacent to the General Plan Planning Area).

Table Bluff and Humboldt Hill are up-warped "anticlines;" the Eel River delta is a down-warped "syncline." These are features of crustal folding, caused by compression of the shore northeast of the triple junction. The compression also is evident in the regional network of thrust faults running parallel to the fold axes. These faults have lateral-offset components as well, indicating a shearing force (similar to that of the San Andreas fault). A number of these thrust faults are active and capable of producing damaging earthquakes.

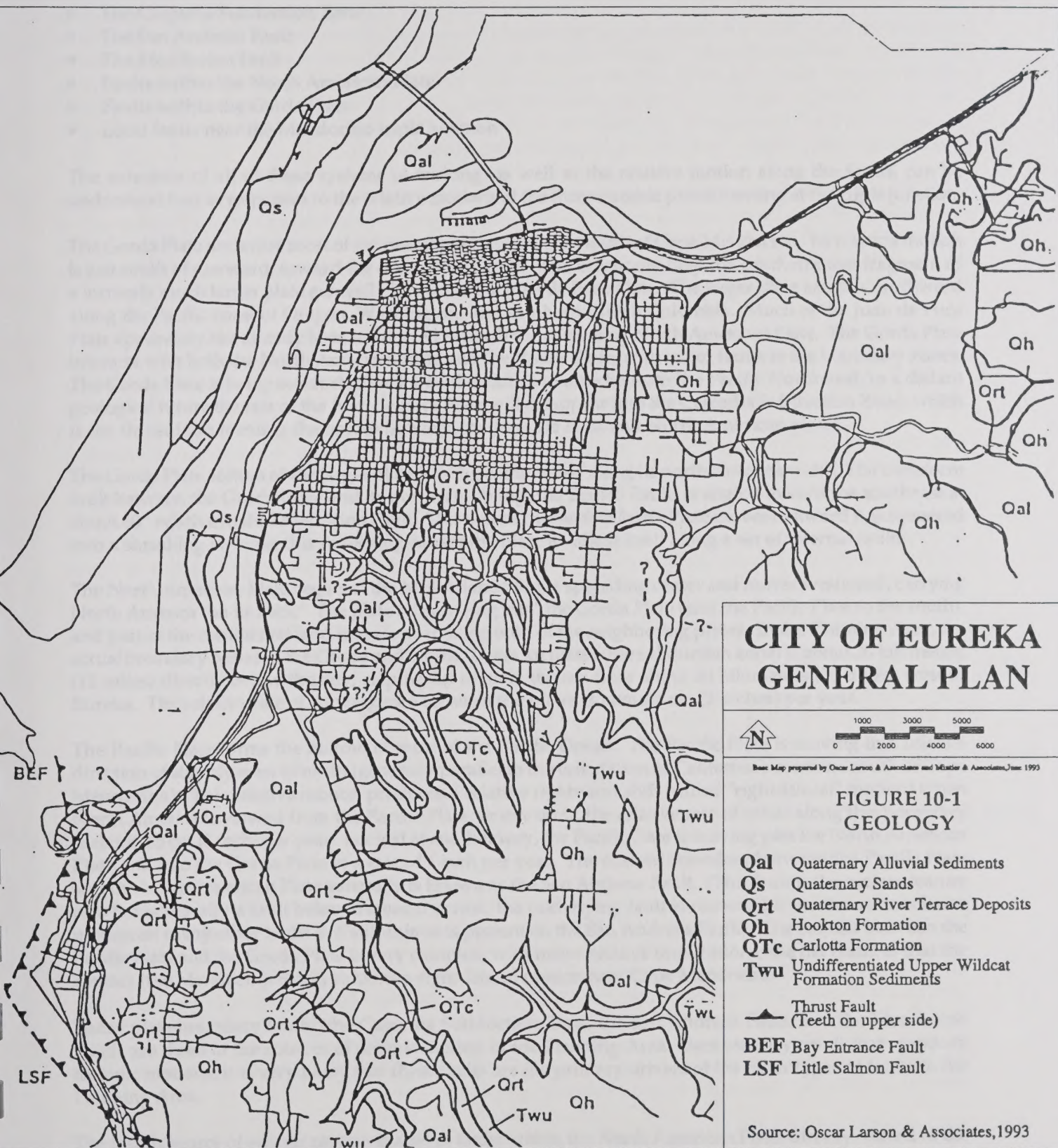
While the regional geological setting is relatively well understood, this understanding generally has not been transferred into materials accessible to the general public. The work of Kilbourne and his colleagues in the late 1970s and early 1980s began to introduce a current understanding of the regional geology to informed specialists. The importance of the Gorda subduction zone and a more realistic appraisal of the potential risks from faults northeast of Eureka were identified. At the same time study results along the Pacific northwest coast were being interpreted to indicate the potential for significant coastal land elevation changes and tsunami, associated with subduction-zone earthquakes.

The slowly shifting perception of regional seismicity and landform evolution snapped into sharper focus on April 25, 1992. A major earthquake on that day was interpreted as a subduction-zone event, with coastal landform changes and a tsunami. Accompanying this clearer perception about regional geological forces was a realization that the seismic hazards assessments conducted during the 1970s were no longer adequate. However, seismic hazards assessments which fully incorporate this clearer perception have yet to be conducted.

FAULTS AND GROUNDSHAKING

General Background

Geological reports for the Planning Area prepared prior to that of Kilbourne and others (1980) omitted consideration of the greatest seismic risk in the Planning Area. The inadequacy results from a lack of consideration of seismic risk (and tsunami potential) from the Cascadia Subduction Zone, which significantly exceeds the risk from other fault systems in the Planning Area. More generally, the Planning Area's current geological setting includes an understanding of regional faulting that is more complex than was envisioned prior to 1980.



At least six different sources of seismic shaking that may affect the General Plan Planning Area:

- The Cascadia Subduction Zone
- The San Andreas Fault
- The Mendocino Fault
- Faults within the North American Plate
- Faults within the Gorda Plate
- Local faults near the Mendocino triple junction

The existence of all of these systems of faulting, as well as the relative motion along the faults, can be understood best as responses to the relative motions of the three tectonic plates meeting at the triple junction.

The Gorda Plate underlies most of the nearshore Pacific Ocean north of Cape Mendocino. Its relative motion is just south of eastward, toward the coast. The Gorda Plate is actually only the southernmost fragment of a formerly much larger plate generally known as the Juan de Fuca Plate. The larger plate extends northward along the Pacific coast of Oregon, Washington, and southern British Columbia. Much of the Juan de Fuca Plate apparently has already been subducted beneath the advancing North American Plate. The Gorda Plate interacts with both the North American Plate and the Pacific Plate, with major faults at the boundary zones. The Gorda Plate is being subducted back into the earth's mantle beneath the Pacific Northwest; in a distant geological future the rest of the Juan de Fuca Plate will disappear into the Cascadia Subduction Zone, which is the thrust fault forming the border between the Juan De Fuca and North American plates.

The Gorda Plate section of the larger plate is being compressed along its north-to-south width. The transform fault between the Gorda Plate and its northern sibling (the Blanco Fault) is angled toward the southeast at about 60° relative to the Mendocino Fault. This means that as the Gorda Plate moves eastward it is squeezed into a shrinking volume; this squeezing causes the plate to adjust itself along a set of internal faults.

The North American Plate begins at the Mid-Atlantic Ridge spreading center and moves westward, carrying North America "on its back." The plate is "bumping into" the Gorda Plate (and the Pacific Plate to the south), and part of the continental land mass is overriding both of the neighboring plates. In the Planning Area, the actual boundary between the Gorda and North American plates (the subduction zone) is about 20 kilometers (12 miles) directly below the city, sloping up to meet the sea floor about 50 kilometers (30 miles) west of Eureka. The relative rate of convergence between the plates is about 5 cm (2 inches) per year.

The Pacific Plate forms the bottom of most of the Pacific Ocean. The Pacific Plate is moving in a relative direction of slightly west of north (generally parallel to the orientation of California's coastline south of Cape Mendocino). This relative motion produces a relative rightward shift (called "right-lateral" motion) when North America is viewed from the Pacific Plate, or *vice versa*; the relative rate of offset along this boundary is about 2.5 cm (1 inch) per year. Looked at another way, the Pacific Plate is moving past the North American Plate and into the Gorda Plate at a rate of 1 inch per year. The current boundary between the Pacific Plate and the North American Plate generally is known as the San Andreas Fault. (This fault is the surface feature of what is actually a fault below the earth's crust; the underlying fault is responsible for the same relative motion on many other faults in California as is present on the San Andreas Fault). The contact between the Pacific Plate and the Gorda Plate is very complex, with major seismic implications; the net result is that the contact (the Mendocino Fault) exhibits a right-lateral motion near Cape Mendocino.

These plate-boundary faults (the Cascadia Subduction Zone, the San Andreas Fault, and the Mendocino Fault) are three of the sources of seismic motion in the Planning Area. Because they result from primary tectonic motions, it is very likely that these faults are the primary drivers of the other types of faults in the Planning Area.

The fourth source of seismic motion is a set of faults within the North American Plate, directly related to the subduction zone. As noted previously, faulting is one of the results of the geomorphic "squeezing" occurring

northeast of Cape Mendocino. The onshore faults (together with the offshore segments that are still in the North American Plate) are essentially parallel to the fold axes described previously. The faults (see the following subsection for an identification of the faults) are steeply dipping to the northeast, and the lower sides of the faults are driven under the upper sides; these are called "thrust faults." The overall effect is to shorten the coastline northeast of Cape Mendocino and to raise blocks of the terrain as elevated features in the landscape. Nearly all of these faults may also have right-lateral offset components in their relative motions, although not all geologists agree on that point. These right-lateral components may reflect a generalized offset in the western edge of the North American Plate south the triple junction, in addition to an internal offset resulting from rotation around the triple junction.

The fifth source of seismic motion is a group of faults within the crust of the Gorda Plate. These faults trend northeast-southwest (approximately at right-angles to the onshore faults just described), and most are close to vertical. The relative motion is "left-lateral;" that is, with a lateral offset to the left when viewed across the fault. The relative motion reflects a compression and rotation of the plate as it is squeezed between converging boundary faults and under the North American Plate.

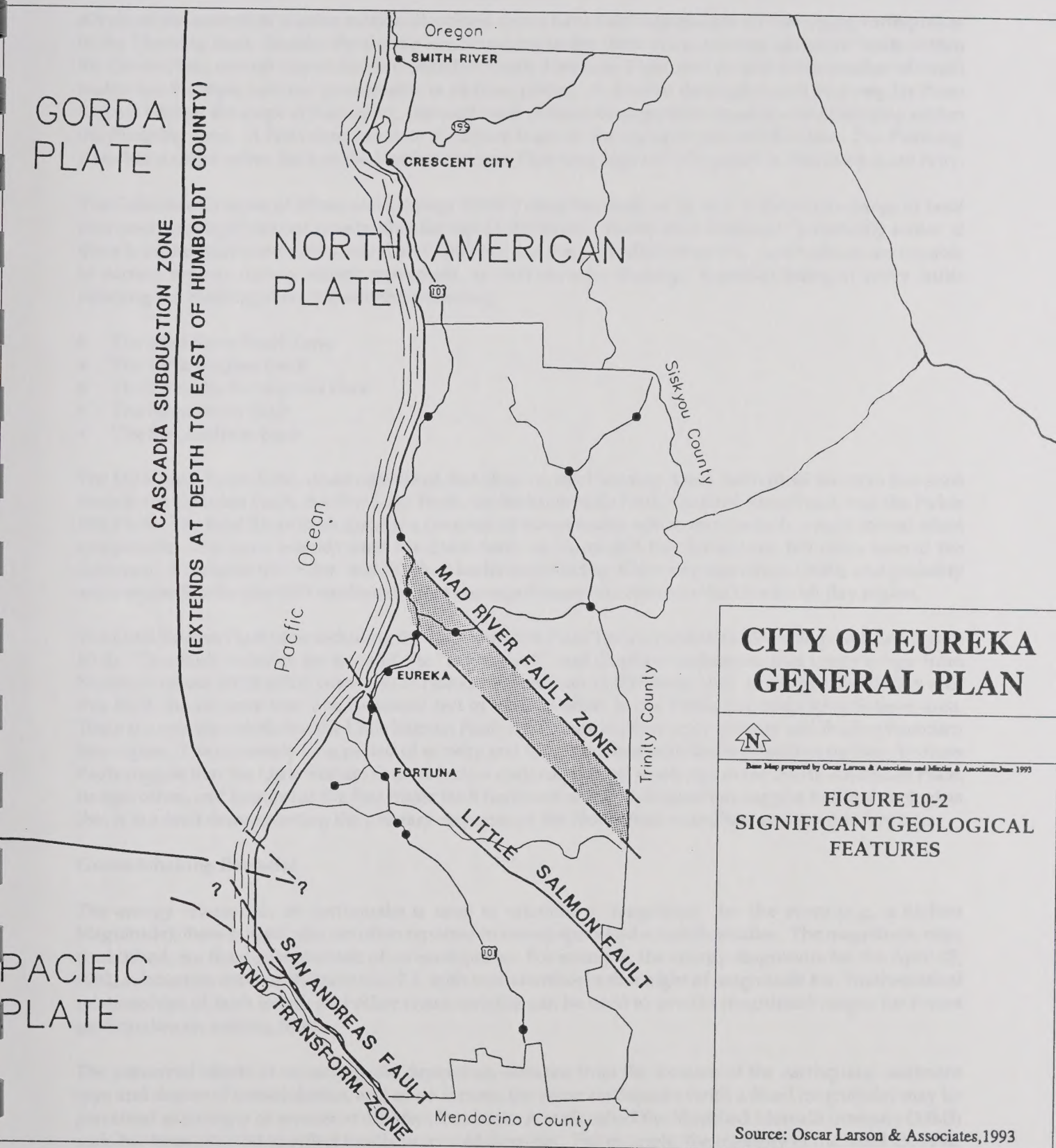
The sixth source of seismic events in the Planning Area is breakage within the three plates where they are colliding at the triple junction; that is, there are many localized faults within the three plates near the triple junction, which result from the collision. Past earthquake events suggest that there are more local fractures in the Gorda Plate than in the other two plates.

This portrayal of tectonic and seismic events in Northwestern California reflects a developing understanding of the geology in this interesting region. Until April 1992, many geologists were unconvinced that the Cascadia Subduction Zone was a source of earthquakes. In 1995, the State of California Division of Mines and Geology (DMG) published a "planning study" for a potential Cascadia Subduction Zone earthquake (T. Topozada and others, Planning Scenario in Humboldt and Del Norte Counties, California, for a Great Earthquake on the Cascadia Subduction Zone; California Department of Conservation, Division of Mines and Geology, Special Publication 115; 1995). The "scenario earthquake" is described as follows:

1. *The Gorda segment of the Cascadia Subduction Zone (CSZ), extending 150 miles [240 kilometers (km)] from Cape Mendocino to Cape Blanco, ruptures in an earthquake of Magnitude 8.4.*
2. *The ocean floor undergoes a maximum surface displacement of 26 feet (8 m), with the east side up, on a fault dipping 11 degrees to the east beneath Humboldt and Del Norte counties.*
3. *Sea floor deformation generates a destructive sea wave or tsunami.*
4. *Triggered offset along the Little Salmon fault (south of Eureka) averages 6 feet (2 m).*
5. *Potentially damaging ground shaking continues for about 60 seconds within 25 miles (40 km) of the fault. Humboldt and Del Norte counties are less than 25 miles above the CSZ fault plane which dips gently eastward, and are wholly within the zone of damaging shaking.*
6. *Potentially damaging aftershocks occur for several months following the main shock, with a few earthquakes in the Magnitude 6 to Magnitude 7 range.*

Based on the scenario earthquake, the Modified Mercalli Intensity (MMI) predicted for the Eureka terrace by Topozada and others is approximately the upper end of the range of effects under "VIII" in Table 10-1. However, the MMI is predicted to be "IX" for the Samoa Peninsula, for the low-lying area west of Highway 101 in Eureka, for King Salmon and the low-lying area west of Humboldt Hill, and for the unconsolidated low-lying areas in the Elk River Valley, the Eureka Slough plain, and the bottoms of Martin Slough and First, Second, and Third sloughs; in addition, all of these areas of unconsolidated sediments are anticipated to be subject to a significant potential for liquefaction, and the canyon margins bordering the sloughs are likely to be subject to lurching and slope failure. Humboldt Hill is identified as an area likely to be subject to coherent landsliding associated with the earthquake's shaking.

Figure 10-2 shows significant geological features in the General Plan Planning Area.



Faults and Seismic Shaking in the Planning Area

All six of the sources of seismic motion identified above have been responsible for damaging earthquakes in the Planning Area. Besides the three plate-boundary faults, there are numerous unnamed faults within the Gorda Plate, several named faults within the North American Plate, and an unknown number of small faults near the triple junction (presumably in all three plates). A detailed description and mapping for these faults is beyond the scope of this report, although most of them are capable of causing seismic shaking within the Planning Area. A brief description of the active faults in the region is presented below. The Planning Area has a major active fault in the North American Plate (see Figure 10-2), which is described more fully.

The California Division of Mines and Geology (DMG) classifies faults as "active" if there is evidence of fault movement during Holocene time (within the last 11,000 years). Faults are considered "potentially active" if there is evidence of movement more than 11,000 but less than 1,800,000 years old. Active faults are capable of surface rupture during seismic movement, as well as major shaking. A partial listing of active faults affecting the Planning Area include the following:

- The Mad River Fault Zone
- The Little Salmon Fault
- The Cascadia Subduction Zone
- The Mendocino Fault
- The San Andreas Fault

The Mad River Fault Zone occurs outside of, but close to, the Planning Area. Individual faults in this zone include the Trinidad Fault, the Blue Lake Fault, the McKinleyville Fault, the Mad River Fault, and the Fickle Hill Fault. The Mad River Fault Zone is a complex of thrust faults, which may include a right-lateral offset component. The Zone extends from the coast north of Humboldt Bay for at least 100 miles toward the southeast. It includes the "Falor" and "Korbel" faults identified by Kilbourne and others (1980), and probably was responsible for the 1954 earthquake that damaged many structures in the Humboldt Bay region.

The Little Salmon Fault (also including the "Bay Entrance Fault") occurs within the Planning Area (see Figure 10-2). This fault includes the trace of the "Yager Fault" and displaces sediments that range in age from Mesozoic (about 100,000,000 years old) to Holocene (less than 11,000 years old). In the Humboldt Bay area this fault shows more than one thousand feet of vertical offset in the Fields Landing/King Salmon area. There is evidence correlating the Little Salmon Fault with faults in Mendocino County and the San Francisco Bay region. The extremely long period of activity and the correlation with faults related to the San Andreas Fault suggest that the Little Salmon Fault reflects a major structural weakness in the North American Plate. Its age, offset, and location as the first major fault northeast of the triple junction suggest to some geologists that it is a fault demonstrating the primary response of the North American Plate to the triple junction.

Groundshaking Potential

The energy released in an earthquake is used to calculate a "magnitude" for the event (e.g., a Richter Magnitude); these magnitudes are often reported in newspapers and scientific studies. The magnitude, once established, is a fixed characteristic of an earthquake. For example, the energy magnitude for the April 25, 1992, subduction zone earthquake was 7.1, with two aftershocks that night of magnitude 6.6. Mathematical relationships of fault length and other characteristics can be used to predict magnitude ranges for future earthquakes on existing faults.

The perceived effects of an earthquake depend on distance from the location of the earthquake, sediment type and degree of consolidation, and other factors; the same earthquake (with a fixed magnitude) may be perceived as stronger or weaker at different locations. A scale called the Modified Mercalli Intensity (MMI) scale has been adopted to reflect locally perceived intensity. For example, the intensity of the April 25, 1992, earthquake was VIII in the Petrolia area, VII in Rio Dell, and V in Eureka. Intensity is less directly predictable

than is magnitude. Additional parameters of future earthquakes may be predicted, with various degrees of accuracy. One frequently-cited parameter is instantaneous acceleration, expressed as a ratio with respect to the acceleration of gravity; (e.g., 0.4 g equals 40 percent the acceleration of gravity). The instantaneous acceleration is useful in predicting the responses of structures to the maximum anticipated shaking. Table 10-1 summarizes the Modified Mercalli Intensity Scale.

TABLE 10-1	
MODIFIED MERCALLI INTENSITY SCALE OF 1931	
Intensity	Description of Damage
I	Not felt except by a very few under specially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	During the day, felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make creaking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motorcars.
VIII	Damage slight in specially designed structures; considerable in ordinary, substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motorcars disturbed.
IX	Damage considerable in specially designed structures; well-designed, frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with their foundation; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Waves seen on ground surfaces. Lines of sight and level distorted. Objects thrown upward into air.
Source: Kilbourne and others	

Table 10-2 lists the potentials for five of the six sources of earthquakes; seismic events from small faults near the triple junction will be less than those portrayed in the table. Energy magnitudes are expressed as the range of magnitudes that could result from earthquakes of each type. The intensity ranges are the peak intensities expected from earthquakes of each type; these peaks might not necessarily result from the earthquake with the greatest magnitude.

TABLE 10-2

POTENTIAL SOURCES OF DAMAGING EARTHQUAKES
General Plan Planning Area

Name	Location and Style of Faulting	Magnitudes of Damaging Earthquakes	Peak Intensities	Recurrence
Gorda Plate				
Example: 11/8/80 (surface wave magnitude 7.2)	Primarily offshore; strike-slip faulting	5 to 7.5 (historic)	VII to VIII (historic)	5.5 years for intensities $\geq$ VII (combined Mendocino Fault and Gorda Plate sources)
Accounts for majority of historic seismicity, most probable source of damage in the near future; primary impact to coastal communities of Humboldt County.				
Mendocino Fault				
Example: 6/25/68 (local magnitude 5.9)	Offshore west of Cape Mendocino; primarily strike-slip faulting	5 to 7.5 (historic)	VII to VIII (historic)	5.5 years for intensities $\geq$ VII (combined Mendocino Fault and Gorda Plate sources)
Second most common source of historic earthquakes, primarily impacting communities near Cape Mendocino and those in the Eel River Valley and Humboldt Bay areas.				
San Andreas Transform System				
Example: 4/18/06 (magnitude 8.3)	Onshore and near-shore, south of triple junction; primarily strike-slip	5.0 to 8.3 (historic)	VII to IX (historic) in southern Humboldt County	1906 San Andreas-type earthquakes: 200 to 400 years
Less probable but potentially more damaging than Gorda Plate or Mendocino Fault earthquakes; primary impact in southern Humboldt County and Humboldt Bay areas.				
North American Plate				
No historic large thrust earthquakes	Onshore and shallow; primarily thrust-faulting	6.5 to 8+ (expected)	$\geq$ IX for thrust events (expected)	For thrust events, hundreds of years
Less probable in near future than Gorda Plate or Mendocino Fault earthquakes; much greater impact; possible tsunami.				
Cascadia Subduction Zone				
No historic great subduction zone earthquakes. April 25, 1992 M = 7.1 involved slip at the southern end of zone	Onshore and offshore; rupture length 125 miles (200 km) or more; thrust-faulting	7.1 (historic) southern segment—8.5 whole zone—9 to 9.5 (expected)	In Humboldt and Del Norte counties; $\geq$ X (expected)	300 to 500 years
Less probable in near future than Gorda Plate or Mendocino Fault earthquakes; most damaging of all potential sources; likely to generate a tsunami.				
Source: Modified from Dengler and others				

SURFACE RUPTURE AND GROUND FAILURE

In addition to strong seismic shaking, earthquakes can be accompanied by direct changes in the land surface. These changes can have significant effects on people and structures nearby. The changes most likely will occur close to fault traces on the land, but some of the effects of land failure occur in places far from faults.

Fault Rupture

The ground surface at the location of a fault may be offset by an earthquake. Any man-made structures or appurtenances built across the fault are likely to be destroyed by the surface rupture. Within the Planning Area, the Little Salmon Fault appears to be likely to experience fault rupture at some time; the surface rupture would be likely to propagate to the collateral Bay Entrance Fault and the other branches in the vicinity of Fields Landing and King Salmon. It is possible that fault rupture could occur at other locations

not currently known to be subject to fault rupture. It is less likely that locations not known to have faults will develop new faults, and the elevated terrace on which the City of Eureka is located is not known to have faults at this time.

It should be noted that surface breakage which is not fault rupture can occur in the vicinity of active faults. Many major earthquakes in the region including the Planning Area have resulted in the appearance of ground cracks near the Little Salmon Fault (see Kilbourne and others 1980). It appears that none of the previously observed ground failures have been fault rupture along the Little Salmon Fault.

Surface rupture along fault traces is the specific concern of Alquist-Priolo studies. Alquist-Priolo studies have been prepared for the faults in the Humboldt Bay region, including the Little Salmon Fault. In this instance, the Alquist Priolo zone includes a zone of earthquake-related landslide features on Humboldt Hill.

Liquefaction

Some fine-grained granular sediments (including silt and gravel, but particularly sand) can experience a nearly complete loss of internal cohesion when subjected to strong seismic shaking, behaving like a liquid. The potential for liquefaction depends on saturation, the degree of roundness of the grains, the degree of compaction, the depth of the confining overburden, the uniformity of the deposit, and the strength of the earthquake shaking. Liquefaction of surface sediment layers can result in the formation of a "quicksand" which will not bear buildings, people, or other objects. Liquefaction in layers below the surface can result in the formation of a lubricated sliding surface, followed by lateral shifting of the solid surface sediments or by movement of large volumes of soil and rock downhill along the plane of the liquefied layer.

Because the potential for liquefaction is a function of saturation by water, sediment properties, and the strength of the seismic shaking, it is not possible to predict definitively whether a given granular deposit will liquefy when shaken. Sediments having more of the elements leading to liquefaction are more likely to liquefy than are sediments with fewer risk factors. Areas potentially subject to liquefaction do occur in the General Plan Planning Area. Often they are buried stream channels or old dune deposits, showing no indication at the surface that liquefaction might occur.

Another indication of liquefaction is the presence of "sandblows" following earthquakes. These are micro-volcanoes of liquefied sands ejected through cracks in a non-liquefied surface layer. Sandblows have been found in the Planning Area, especially in low-lying sediments in the Fields Landing area.

General calculations suggest that the earthquake magnitude necessary to induce liquefaction is about 7.0. The magnitude 7.1 event of April 25, 1992, did produce sandblows in the Eel River delta, and earlier earthquakes produced either or both sandblows and liquefaction-induced settlement in the Planning Area for earthquakes with magnitudes between 6.0 and 7.0. Liquefaction during future earthquakes should be considered to be very likely within the Planning Area.

Lurching

Ground lurching is a type of movement seen during earthquakes in soils that are unconfined on one side, such as might occur along the tops or sides of bluffs, creek banks, or artificially constructed fills or embankments. The soil moves toward the unconfined side and drops, forming cracks or slipfaces at the locations of separation. In the Planning Area the canyons and gulches that are incised into the terrace are potential locations for ground lurching during earthquakes. Structures located too close to the sides of the canyons potentially could be subject to damage from partial foundation failure.

Slope Failure

Slope failures occur in a variety of types, including rotational slumps, debris slides, block slides, mud flows, and rock falls. Most slope failures in the Planning Area are caused by a combination of oversteepened slopes, a reduction in vegetational cover, and an increase in soil water. When these factors are present, a potential for slope failure exists in most sediments found in the Planning Area.

When a slope already predisposed to fail is shaken by an earthquake, the failure can be precipitated immediately. Structures, pipelines, and other improvements can be damaged if they are within the region which fails or the region at the bottom of the failed slope. In the Planning Area the risk of slope failure is most acute along the margins and at the bases of slopes in the canyons and gulches incised into the terrace surface.

In the Planning Area the relationship between seismic shaking and slope failure is critically indicated on the flanks of Humboldt Hill. Humboldt Hill is a feature directly related to coastal warping accompanying tectonic activity; it is also directly adjacent to and critically associated with the Little Salmon Fault. Many instances of slope failure and scarp formation on Humboldt Hill are related to the unconsolidated nature of its sediments and the occurrence of periodic, strong seismic shaking.

Subsidence and Settlement

Some types of sedimentary deposits are subject to internal collapse or settlement. If excessive groundwater extraction reduces intergranular support, settlement likelihood is increased. In addition, some organic materials found in sediment layers (e.g., peat) are highly compressible. While these effects can occur without seismic shaking, the shaking can precipitate the collapse of such sediments.

It is unlikely that groundwater extraction has been extensive enough in the Planning Area to increase subsidence risk. Surface soil layers throughout the Planning Area may, however, contain voids and may be compressible; potential subsidence and settlement risk associated with these conditions can usually be mitigated during construction by excavating foundations to noncompressible soil layers.

Soils in some parts of the Planning Area, particularly the bayside alluvial deposits, contain buried peat layers. These soils could be subject to settlement during seismic shaking. Appropriate construction of the foundations in structures sited on bayside deposits will be necessary to avoid this risk.

A related concern in study-area soils is the potential for construction on expansive soils. These are soils with high percentages of certain types of clay particles, which absorb water and swell. Potential foundation instability is one possible result, and the swollen soil is also at greater risk of movement when shaken. In general, the Planning Area is not known to contain expansive soils, and the risk can be addressed by appropriate foundation design and construction if it is found to be present.

SEISMICALLY-INDUCED FLOODING

Tsunami

Tsunami are "tidal waves" or seismic sea waves generated by submarine landslides or changes in sea floor elevation resulting from earthquakes. These waves are capable of causing major property damage and loss of life. The General Plan Planning Area is subject to tsunami of potentially greater significance than previously thought.

Tsunami risk in the General Plan Planning Area differs for direct ocean exposure (i.e., on the west side of the Samoa Peninsula) and inside Humboldt Bay. The risk also differs between tsunami generated at distant sites and those that are generated locally. Tsunami run-up elevations were calculated for ocean-exposed sites by

Houston and Garcia (1978), including normal tidal cycle elevations. On ocean beaches in the Planning Area, the predicted run-up elevations were 3.3 meters (10 feet) for a 100-year tsunami event and 6.4 meters (about 21 feet) for a 500-year event. Most of both Humboldt Bay peninsulas exceed 10 feet in elevation. Tsunami run-up elevations inside the bay for a 100-year event are controlled by the flow dynamics of the enclosed bay and are much less than on the exposed coast.

The computed run-up elevation for a 500-year event exceeds the elevation of dunes for several locations on the bay's southern peninsula. Such a tsunami could overtop the peninsula, producing higher run-up elevations in the South Bay and eroding the peninsula. The precise effects of such a tsunami have not been calculated, but probably include inundation of low-lying areas in Entrance Bay and South Bay (such as King Salmon and Fields Landing). Increased run-up elevations in west Eureka would be possible.

In addressing tsunami, Kilbourne and others (1980) concluded that the risk from locally-generated tsunami would be less than for tsunami generated at a distance. The current reinterpretation of local seismicity described previously also includes a reevaluation of the risk from locally-generated tsunami. The April 1992 earthquake modified shoreline elevations near the Mattole River and generated a tsunami that reached Humboldt Bay approximately 20 minutes after the onset of the event. This implies that a major event within the subduction zone fault could generate a large tsunami with an arrival time at Humboldt Bay of 10 minutes or less. Potential run-up elevations for locally-generated tsunami are the subject of current studies by affected federal agencies, but results are not yet available. For a major event (energy magnitude greater than 9.0), the resulting tsunami probably would exceed the 500-year run-up elevations predicted by Houston and Garcia (1978) for distant events.

Seiches

A seiche is an internal free-water oscillation in a semi-enclosed or enclosed water basin, such as Humboldt Bay, because of seismic shaking or similar sources of periodic waves. No significant seiches have ever been observed in Humboldt Bay. Kilbourne and others (1980) concluded that localized flooding because of seiches in Humboldt Bay would be less than flooding caused by tsunami, primarily because of bay basin characteristics.

Reservoir Failure

No part of the General Plan Planning Area is downstream from a water-supply reservoir in a stream or river. The water-supply reservoir for Eureka is behind Matthews Dam, on the Mad River. There is no risk that any part of the Planning Area could be affected by failure of Matthews Dam.

The water supply for the City does have a surface storage reservoir adjacent to Sequoia Park. Catastrophic failure of this reservoir could result in minor localized surface flooding and erosion. Previous earthquakes in the Planning Area resulted in cracked linings but not in leakage. It is unknown whether this reservoir is capable of remaining undamaged through earthquakes which could strike the Planning Area.

STRUCTURAL HAZARDS AND CRITICAL FACILITIES

STRUCTURAL HAZARDS

Seismic Motion and Structural Response

The primary concern for buildings in the Planning Area because of earthquake shaking is not for surface rupture, settlement, or liquefaction; it is that the shaking will cause the building itself to fail structurally in some way. Earthquakes cause vibrational waves in the earth. When a structure is deflected by the arrival of the ground movement, it oscillates according to inherent structural characteristics. If the oscillation

frequency of the building coincides with the vibrational frequency of the earthquake waves, the building's oscillations will increase until structural failure results. In addition, if the initial earthquake deflection exceeds the built-in structural strength of the building, the building will fail immediately.

Structural responses of buildings in the Planning Area to seismic shaking have been assessed, particularly since the April 1992 earthquakes. Most of the structures in the Planning Area are wood-frame buildings, which have both a high degree of structural flexibility (i.e., a low probability of initial structural failure) and oscillatory frequencies that do not match the frequencies of seismic waves very closely. While most structures in the Planning Area are inherently resistant to earthquake effects, the new understanding of regional geology has not been fully integrated into the stability analyses (especially the extended durations of shaking for subduction zone events) and additional analyses are warranted.

Unreinforced Masonry Structures

The general conclusion that buildings in Eureka are generally resistant to the effects of seismic shaking does not apply to unreinforced masonry structures. These are older masonry structures which lack structural members binding the building's walls and floors together. This allows the building's walls to separate under seismic shaking, with collapse of the roof and floors; following the removal of the lateral support the floors provided, the walls also collapse. In addition, parapets and other architectural features are likely to separate from the bearing walls and fall.

There are a number of unreinforced masonry structures in the Planning Area, primarily in downtown Eureka and along Broadway. The City's "active" unreinforced masonry building list currently includes 25 buildings. There are a number of unreinforced masonry buildings in the City that are not on the "active" list.

CRITICAL FACILITIES

While the term "critical facilities" is often used in emergency planning, a more appropriate term would be "essential facilities," identified in Table 23-K of the Uniform Building Code (UBC) as "structures which are necessary for emergency operations subsequent to a natural disaster." Essential facilities include the following:

- Hospitals and other medical facilities having surgery and emergency treatment areas
- Fire and police stations
- Tank or other structures containing, housing, or supporting water or other fire-suppression materials or equipment required for the protection of essential or hazardous facilities or special-occupancy structures
- Emergency vehicle shelters and garages
- Structures and equipment in emergency-preparedness centers
- Standby power-generating equipment for essential facilities
- Structures and equipment in government communication centers and other facilities required for emergency response

The UBC also includes definitions for hazardous facilities and special occupancy structures. In many cases such facilities are included in the general category of critical facilities. Table 10-3 summarizes critical facilities in Eureka.

TABLE 10-3	
CRITICAL FACILITIES	
Facility	Location
Hospitals and other medical facilities having surgery and emergency treatment areas:	
General Hospital	2200 Harrison Avenue
St. Joseph Hospital	2700 Dolbeer Street
Humboldt Occupational and Environmental Medicine	727 F Street
Fire and police stations:	
Eureka Fire Department Headquarters	533 C Street
Station 3	2905 Ocean Avenue
Station 4	1016 Myrtle Avenue
Eureka Police Department	604 C Street
Humboldt County Sheriff's Office	826 Fourth Street
Tanks or other structures containing, housing or supporting water or other fire-suppression materials or equipment required for the protection of essential or hazardous facilities, or special occupancy structures:	
Water Tower (high and low tanks)	NW Corner Harris and K streets
Water Treatment Plant	3575 W Street
Terminal Reservoir	3575 W Street
Sewer Treatment Plant	4301 Hilfiker Street
Lundbar Hills Water Tank	Lundbar Hills
Emergency vehicle shelters and garages:	
City of Eureka Corporation Yard	945 West 14th Street
County of Humboldt Corporation Yard	901 Second Street
County of Humboldt Maintenance Shop	3130 Jacobs Avenue
Caltrans Office	1656 Union Street
Structures and equipment in emergency-preparedness centers:	
Eureka Fire Department (Police and Fire Communications Center and City of Eureka's Emergency Operation Center)	533 C Street
Humboldt County Courthouse (Sheriff's Department Communications Center and County of Humboldt's Emergency Operation Center)	825 Fifth Street
Standby power-generating equipment for essential facilities; generators located at:	
Eureka City Hall	531 K Street
Eureka Fire Department	533 C Street
Eureka Police Department	604 C Street
City of Eureka Corporation Yard	945 West 14th Street
Structures and equipment in government communication centers and other facilities required for emergency response:	
Eureka Fire Department	533 C Street
Eureka Police Department	604 C Street
Humboldt County Courthouse	925 Fifth Street
Source: City of Eureka	

The Humboldt County Office of Emergency Services uses a broader concept of "key facilities," including some structures that would be considered as hazardous facilities and special occupancy structures. The County's "key facilities" which are within the General Plan Planning Area are the following:

- Bridges over Elk River
- Redwood Acres Fairground
- Harbor District facilities on Woodley Island
- Radio stations and/or transmitters, including KRED and KINS
- Fire stations of Humboldt Fire District 1
- Pacific Gas & Electric (PG&E) power generating station at Buhne Point
- Louisiana Pacific pulp mill
- Coast Guard lifesaving station on the Samoa Peninsula
- Fairhaven Fire Hall
- Schools (used for shelter and assembly purposes)

Within this listing, the Louisiana Pacific mill complex and the PG&E plant may be considered as both essential facilities (for power generating purposes) and potentially hazardous facilities (because of hazardous materials stored and used onsite).

Other hazardous material storage locations exist within the Planning Area, including the Unocal and Chevron petroleum product storage facilities (adjacent to Humboldt Bay within the city). Numerous commercial facilities exist which have hazardous materials stored onsite in smaller quantities, including service stations, commercial cleaners, and some government agency buildings. Tank ruptures in these facilities could occur during natural disasters. Plans to respond to releases of hazardous materials have been developed by the County Office of Emergency Services, pursuant to state and federal requirements.

FIRE HAZARDS

The Eureka area is subject to both urban and wildland fire hazards.

URBAN (STRUCTURAL) FIRE HAZARDS

Many residential, commercial, and industrial structures in Eureka are subject to fire hazards related to electrical shorts, industrial accidents, arson, or simple carelessness. These risks are generally greatest in older structures, constructed before strong building and fire codes were enacted. These hazards are of particular concern in such areas as Old Town, where older buildings are multi-story and tightly packed.

New non-residential buildings and multi-family structures incorporate sprinklers, fire-resistant building materials, and smoke detectors, as required by the State Fire Code.

WILDLAND FIRE HAZARDS

Significant parts of the General Plan Planning Area are an intermixture of wildland and urban and rural uses (i.e., wildland/urban interface). Most of the wildland/urban interface is located outside Eureka in unincorporated parts of the Planning Area, although there are numerous gulches and greenways within the city adjacent to urban uses. The presence of urban and rural uses adjacent to wildlands increase the likelihood of wildland fires, and the presence of wildlands in and adjacent to urban and rural areas allows fires to spread rapidly to other urban and rural areas. To minimize fire risk in wildland areas, CDF has adopted a policy requiring that a fire-safe buffer be established around both existing and new structures. City and county regulations require minimum roadway widths for fire access purposes and the provision of fire hydrants in areas with public water service.

FIRE SUPPRESSION SERVICES

Fire suppression responsibilities in the Planning Area are shared by three entities: the City of Eureka Fire Department, Humboldt County Fire District Number 1 (HFD1), and the California Department of Forestry and Fire Protection (CDF). The City Fire Department has primary responsibility for fighting fires within the city limits. CDF has primary responsibility for fighting wildland fires outside of the region covered by the City Fire Department and HFD1. The jurisdictional area for HFD1 includes developed areas outside of City responsibility, including Myrtleowne, Pine Hill, Cutten, Ridgewood Heights, King Salmon, and Fields Landing. The actual boundaries for the three entities are not permanently fixed, and vary through time.

Response to fires is somewhat flexible. The City and HFD1 currently have a joint operational agreement requiring that the agency having the nearest fire station accept primary responsibility for a fire, regardless of jurisdiction. If requested, CDF would also respond to a fire inside the urbanized area. The City and HFD1 would respond to a wildland fire if requested to do so by CDF. Mutual aid agreements also allow fire departments in other local jurisdictions to respond to fires in the Planning Area, on request from the agency with primary jurisdiction. Figure 10-3 shows the primary jurisdictions for fire suppression in the area.

FLOODING HAZARDS

GENERAL DISCUSSION

Previous documents prepared to address safety in the Planning Area have segregated meteorological flooding discussions from seismic flooding and/or tidal and sea level concerns. In addition, flooding is characteristically only treated negatively (that is, as an adverse event to be avoided). These perspectives are not consistent with current understanding about the interrelationships of water and land use. In addition, flooding in coastal environments can result from any one of the known causes, but can also result from a combination of causes.

Planning for land use in areas known to be subject to flooding requires a formal recognition that flooding is an inevitable consequence of the interaction between water bodies (including rivers and streams, coastal embayments, and the ocean) and shorelines. Not all flooding can be avoided. It is necessary to determine an acceptable degree of flooding, and then to regulate land use accordingly. Because there is a cost both in avoiding or preventing the flood and in recovering from floods that are out of control, the planning goal is to approve land uses that are tolerant of minor flooding while seeking to avoid the effects of major flooding.

If possible, sensitive land uses should not be placed in areas subject to major flooding.

The City of Eureka participates in the National Flood Insurance Program. This program allows property owners in areas subject to floods to procure insurance coverage at reasonable cost, while also exacting a commitment from the City that it will use land use regulations to keep sensitive land uses away from floodplains or other areas subject to significant inundation.

Development in flood-prone areas increases the severity of flooding. The volume of "space" in the floodplain occupied by the development is not available to be used by floodwaters, so the height of the flood will be a little higher than otherwise. A related effect is that where floodwaters are flowing, the development and its effect of raising local flood elevation create a "backwater effect," raising water heights upstream for a considerable distance. The more development there is, the greater this effect will be.

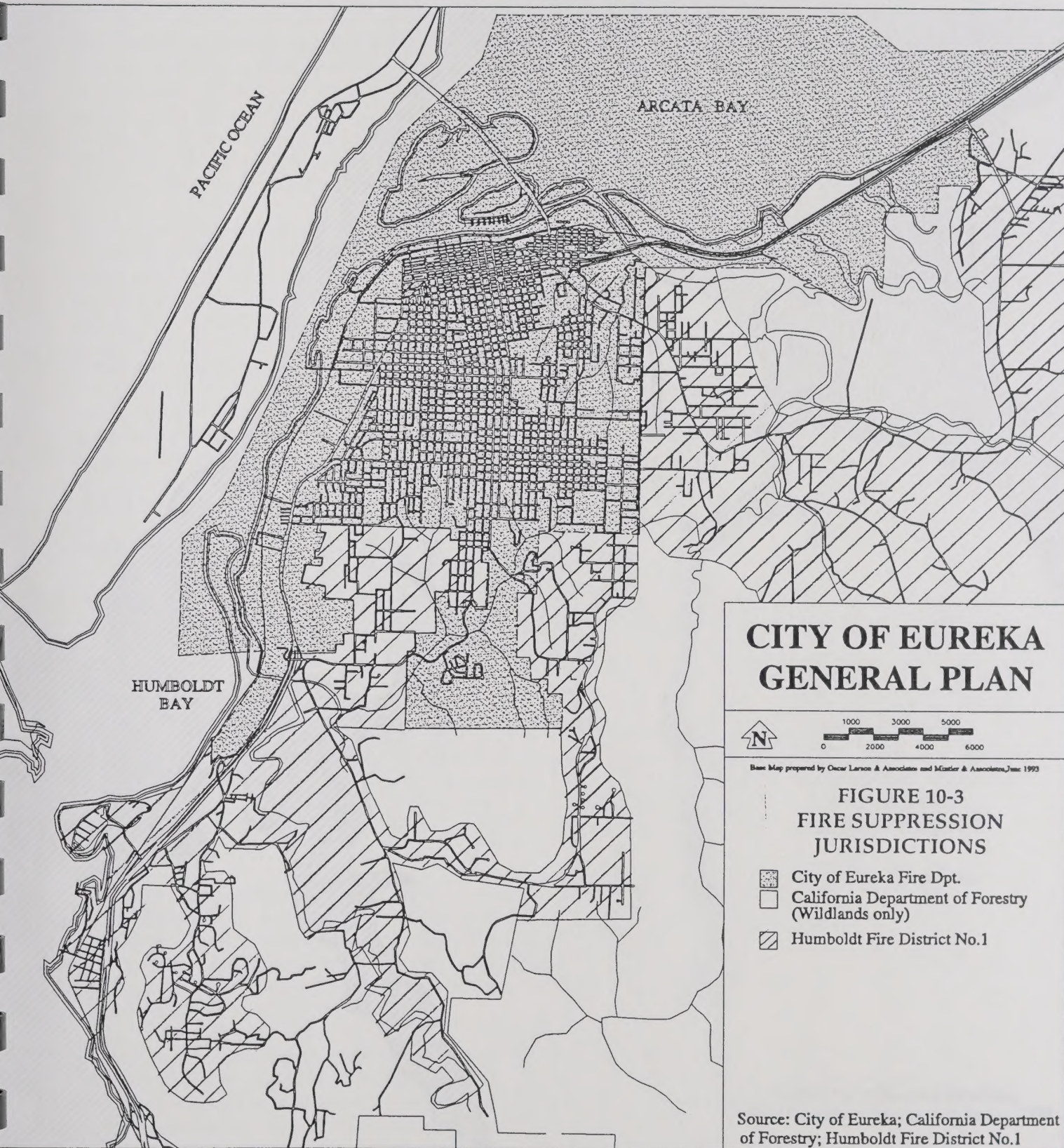
Development in a basin raises flood heights for a given storm intensity even when the development is not in the floodplain. This is because development decreases the ability of the land in the basin to absorb rainfall by covering the land with impervious surfaces. This process causes runoff to reach streams, rivers, and floodplains sooner than otherwise. This concentration of runoff into a shorter time period is equal to higher floodwater heights.

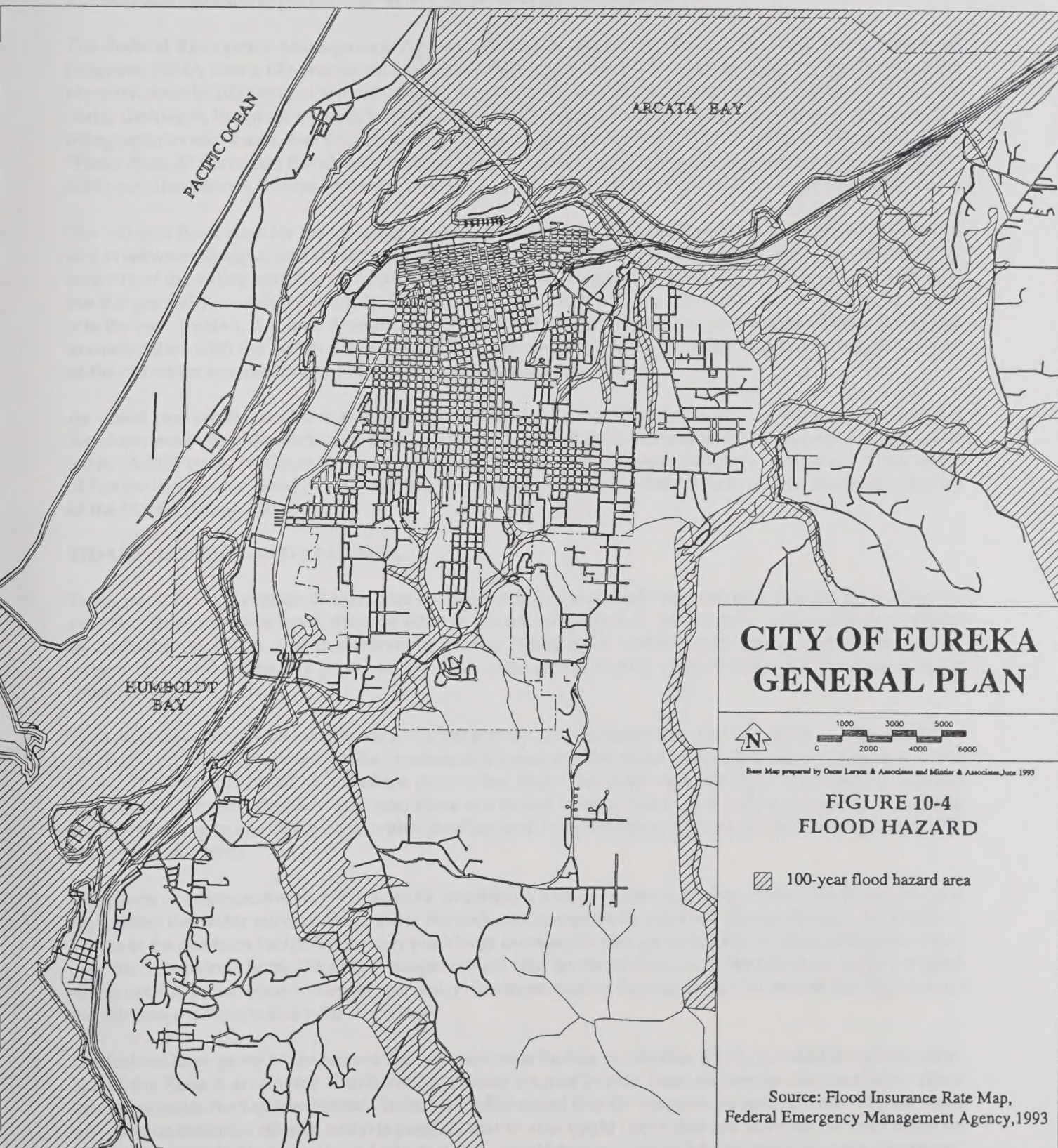
In coastal locations like the General Plan Planning Area, sea level and tidal stage affect flooding. When tidal elevations are low, floodwaters flow into the bay. When tidal elevations are high, tidewater forms a barrier to floodwater flow; this raises the floodwater surface and creates a backwater effect even more complete than that of developments. For areas behind dikes, the tidegates on culverts through the dikes will be closed about half the time, causing the water to be held behind the dikes. These effects would be observed whether the floodwaters were rainfall runoff or seawater that flooded the diked areas because of higher-than-usual tides or seismic effects.

The development pattern in the Planning Area is well-suited to accommodate flooding. Developed areas are generally on the elevated terrace surface (except for the waterfront area). The low areas which function as floodwater storage areas (i.e., the diked former tidelands northeast of Eureka and in the Martin Slough and Elk River Valleys) are relatively undeveloped.

METEOROLOGICAL FLOODING

Most floods in the Planning Area are likely to occur because of excessive rainfall in short time periods. The runoff from these events can be calculated on the basis of drainage basin characteristics and storm intensity.





Storm intensity is a meteorological variable, which is usually portrayed by "return time" (i.e., a rainfall intensity and duration expected once in five years, 10 years, 25 years, etc.).

The Federal Emergency Management Agency (FEMA) is responsible for the National Flood Insurance Program. FEMA uses a 100-year storm as the basis for its coverage; that is, the rainfall intensity and duration expected once in 100 years of typical storms. From this FEMA calculates probable inundation profiles for major drainages, based on existing land uses in each drainage. These profiles are projected onto existing topography in each basin. See Federal Emergency Management Agency (1986) for details. The result is the "Flood Zone A" shown on Flood Insurance Rate Maps (similar computations are sometimes used to identify a 500-year flood zone). Figure 10-4 shows the 100-year flood zone (Zone A) boundary for the Planning Area.

The 100-year flood zone for the Planning Area includes all of the diked former tidelands north of the Eureka and Freshwater sloughs, and those in Elk River Valley and west of Spruce Point. Zone A also includes the majority of the valley bottoms for Martin Slough and Ryan Creek. Flood Zone A includes Humboldt Bay, but it is generally considered unlikely that any super-elevation of tidewater would occur because of runoff into the bay. Instead, the Zone A map area for Humboldt Bay is based on a combination of tidal elevations in combination with the "storm surge" for a 100-year storm (a storm surge is a rise in seawater height because of the reduction in atmospheric pressure accompanying a large storm).

As noted previously, land use affects flood elevations. In the Planning Area, the effect of intensifying development in the Martin Slough basin has been observed to be increasing the flood peaks in the lower basin. A 1989 study by Oscar Larson & Associates identified new development in this area as a likely cause of further increases in flood peak flows and water heights in the Elk River lowlands and the lower reaches of the Martin Slough Valley itself.

TIDAL FLOODING AND SEA LEVEL

Twice per day the elevation of tidewater in Humboldt Bay rises and falls; one high tide is higher than the other and one low tide is lower than the other (a "mixed semi-diurnal" tidal cycle). Tidal flooding is related to the higher-high tide, and to sea level in general. Most lands within the Planning Area that would be subject to tidal flooding are protected by dikes (also called levees), and normal tidal flooding is not a consideration.

Tidewater elevations respond to lunar and solar gravity, and astronomical tidal elevations can be calculated for Humboldt Bay tides, based on the locations of the sun and the moon and on the moon's closeness to the earth. These astronomical relationships cause some high tides (especially during our winter) to be much higher than the mean higher-high tide; these are called "spring" tides, and they are capable of causing shallow flooding in low-lying lands within the Planning Area that are not protected by dikes (e.g., along the northern waterfront).

The effects of astronomical high tides can be amplified if a major storm is passing at the time of the extreme high tides; the water surface rises under the reduced atmospheric pressure (noted above). In addition, storms in the northern Pacific Ocean may push large masses of water across the Pacific basin, piling the water onto the downwind shore. When that happens, local tidal levels are increased. Both of these meteorological effects can happen at once; if they do, tidewater elevations during high tides may be several feet higher than the calculated astronomical tidal elevations.

The Federal Emergency Management Agency uses these factors to calculate a 100-year tidal flood elevation. This is the Zone A shown for Humboldt Bay; based on past events, tsunami run-up does not affect flood elevations inside the bay (see below). It also should be noted that the calculations leading to the FEMA maps are based on historical storms, and it is possible that storms could occur that are more severe than those on which these calculations were based. Such storms would be accompanied by higher tidewater elevations. The FEMA maps show low-lying undiked areas in west Eureka and on the Samoa Peninsula as subject to

inundation. The calculated 100-year stillwater (no waves) elevation is 6.1 feet National Geodetic Vertical Datum (NGVD); this is approximately mean sea level). In other words, undiked areas lower than 6.1 feet in elevation that are adjacent to the bay or to tidal sloughs should be flooded by tidewater at least once per century.

The calculated tidewater Zone A elevations are relative to sea level; if sea level rises globally, then the elevation to which tidewater flooding will occur also will rise. There is a general consensus among atmospheric scientists that sea level will increase during the next half-century; by how much sea level will increase is not a matter of consensus. The increase may be less than one-half meter (approximately 1.6 feet) or more than a meter (approximately 3.3 feet). In the General Plan Planning Area, tidewater flooding elevations will increase by the same amount that sea level rises. FEMA calculations of tidewater flooding have not yet incorporated the projected increase in sea level. Flooding in low-lying undiked areas will increase. Depending on the actual increase in sea level, existing dikes may not be high enough to keep tidewater out in the future.

SEISMIC FLOODING

As noted previously, existing FEMA calculations for flooding levels in Humboldt Bay indicate no tsunami-related elevation effects inside the bay. Existing studies for tsunami run-up on the outside of the Samoa Peninsula indicate a maximum run-up for a 500-year event of about 6.4 meters (about 21 feet), which is less than the height of most of the landforms on the peninsula. These calculations were based on tsunami from distant earthquakes, since tsunami from local events were not believed to occur.

The geological reinterpretation now underway (following the April 1992 subduction-zone earthquake) clearly indicates that the Planning Area will be subject to locally-generated tsunami. Calculations and predicted run-up elevations for these tsunami have not been released, but it is anticipated that peak run-up elevations will increase. If run-up elevations increase enough to overtop the landforms on the peninsulas separating Humboldt Bay from the Pacific Ocean, then the tsunami are likely to influence the level of tidewater inside the bay.

As with seismic hazards, the degree of hazard from flooding in the Planning Area should be reassessed in detailed technical studies. These studies should incorporate the new understanding of the geological setting in Northern California, including possible tsunami effects. It is also imperative that the technical studies address realistic scenarios for sea-level increases generally agreed to be likely to result from global warming. The studies should give special attention to the potential effects of flooding on the critical facilities identified earlier in this chapter.

TOXIC CONTAMINATION OF SOIL AND GROUNDWATER

According to the Regional Water Quality Control Board, the Planning Area contains many sites suspected of having toxic soil and/or groundwater contamination. Toxic contamination is primarily the result of past industrial activity in Eureka, and suspected contamination is heaviest along, and adjacent to, Eureka's waterfront. Of particular concern is the Westside Industrial Area, which historically contained a large concentration of heavy industrial uses.

Past industrial activities in the Planning Area that may have contaminated sites include: rail yards, boat maintenance and repair activities, timber processing, petroleum storage yards, and other heavy industry. Contaminants associated with rail yards include petroleum hydrocarbons, heavy metals, and solvents. Contaminants associated with boat maintenance and repair activity include petroleum hydrocarbons, lead and other heavy metals, copper, and paints and solvents. Contaminants associated with timber processing include complex chemicals and petroleum hydrocarbons. Contaminants associated with petroleum storage yards include oils, gasoline, diesel fuel, and chemical solvents.

FINDINGS

- The degree of risk to the General Plan Planning Area resulting from seismic factors, and the risk from tsunami, appear to be significantly underestimated by existing planning documents. New technical studies should be prepared to evaluate these risks properly and should incorporate results from studies now being conducted by professional earth scientists.
- The Planning Area may experience seismic shaking and related ground failure effects from six distinct sources. At least two of these sources may produce seismic effects greater than have occurred during historic times.
- Seismic shaking presents particular risk to unreinforced masonry structures. Not all unreinforced masonry structures in the Planning Area are under review to have this risk reviewed and reduced. The majority of structures in the Planning Area are wood frame buildings, which are relatively resistant to failure due to seismic shaking.
- The City of Eureka and the Humboldt County Office of Emergency Services have identified "critical" facilities necessary for responding to natural and human-caused disasters. Emergency preparedness plans exist; whether the plans could be carried out successfully is unknown, given the magnitude of some natural events that could occur in the Planning Area.
- Eureka is subject to both urban and wildland fire hazards. These risks are generally greatest in the older structures in town, particularly in Old Town, and in areas adjacent to wildland areas. Fire suppression services are available from the City Fire Department (for areas within the city limits), from Humboldt Fire District Number 1 (for developed areas primarily outside the city), and from the California Department of Forestry (for wildlands primarily).
- The risk of flooding because of meteorological (rainfall) events appears to be well addressed by existing development patterns in the Planning Area. Most area subject to meteorological flooding are open space lands used for agriculture and similar non-sensitive uses.
- The risk of flooding from seismic events far from the Planning Area (particularly tsunami) appears to be adequately addressed by existing policy. The risk of tsunami caused by events near the Planning Area appears to be significantly underestimated. It is possible that tsunami from close events could produce major inundation effects inside Humboldt Bay, including inundation within Eureka.
- A potential exists for increased flooding in the Planning Area resulting from increased sea levels during the next 20 to 50 years. The sea level increase could exceed three feet in height.
- According to the Regional Water Quality Control Board, the Planning Area contains many sites suspected of having toxic soil and/or groundwater contamination.

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Stephens, Tom, Consulting Geologist, SHN Inc.

Sylvia, Jan, Eureka Fire Department

EXISTING REGULATORY FRAMEWORK

The City of Eureka has a long history of providing a safe and healthy environment for its citizens. The City has a strong commitment to the protection of public health and safety, and has a long history of providing a safe and healthy environment for its citizens. The City has a strong commitment to the protection of public health and safety, and has a long history of providing a safe and healthy environment for its citizens.

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TABLE 10.1

PRIME TRIVEL CENTER

Location	Distance (mi)	Travel Time (min)
Highway 101, Eureka	0.5	10
Highway 101, Eureka	0.5	10
Highway 101, Eureka	0.5	10

CHAPTER 11

NOISE



INTRODUCTION

This chapter discusses the regulation of noise in Eureka and identifies major noise sources in the General Plan Planning Area including traffic on major roadways and highways, railroad operations, airports, and representative industrial activities and fixed noise sources. The information in this report comes primarily from the City of Eureka, Caltrans, a community noise survey conducted by Brown-Buntin Associates in August 1993, and data generated by various noise modelling techniques. The modeling methods used in this report closely follow recommendations made by the State Office of Noise Control, and were supplemented by field-measured noise level data. The noise exposure contours contained in this chapter are based upon annual average conditions. Because local topography, vegetation, or intervening structures may significantly affect noise exposure at a particular location, the noise contours should not be considered site specific.

This chapter is divided into nine sections. The first section reviews existing noise regulations contained the 1977 General Plan Noise Element. The second section discusses noise associated with streets and roads in the General Plan Planning Area. The third section describes noise associated with railroad operation. The fourth section reviews fixed noise sources. The fifth section discusses noise associated with area airport operations. The sixth section summarizes the community noise survey conducted to document noise exposure in noise sensitive areas. The seventh and eighth sections list bibliographic references and persons consulted in the course of preparing this chapter. Finally, the ninth section is a glossary of acoustical terms.

EXISTING REGULATORY FRAMEWORK

The 1977 General Plan Noise Element is divided into three sections--policies, principles and standards, and plan proposals. Noise policies treat noise as a form of environmental impact and were developed with the intent of protecting the residents of the City of Eureka from excessive noise levels due to traffic, industrial activities, railroad activities and aircraft operations.

Principles and standards for noise set noise level criteria to evaluate the effects of noise upon noise-sensitive land uses. The standards contained in the 1977 Noise Element are based upon hourly L_{10} criteria developed many years ago by the Environmental Protection Agency (EPA) and Federal Highway Administration (FHWA). The L_{10} criteria have since been abandoned by the EPA and FHWA, in favor of an hourly average sound level standard (L_{eq}), or a 24-hour average day/night standard (L_{dn}). Table 11-1 shows the existing noise level criteria contained within the City of Eureka General Plan Noise Element.

TABLE 11-1		
NOISE LEVEL CRITERIA		
Land Use Areas	Exterior (L_{10})	Interior (L_{10})
Noise Sensitive Areas	45-65 dBA	45 dBA
Residential Areas	45-65 dBA	45 dBA
Industrial Areas	45-75 dBA	*
Note: * Standards Not Developed		
Source: City of Eureka		

The plan proposals contained in the 1977 Noise Element are designed to implement noise policies and standards.

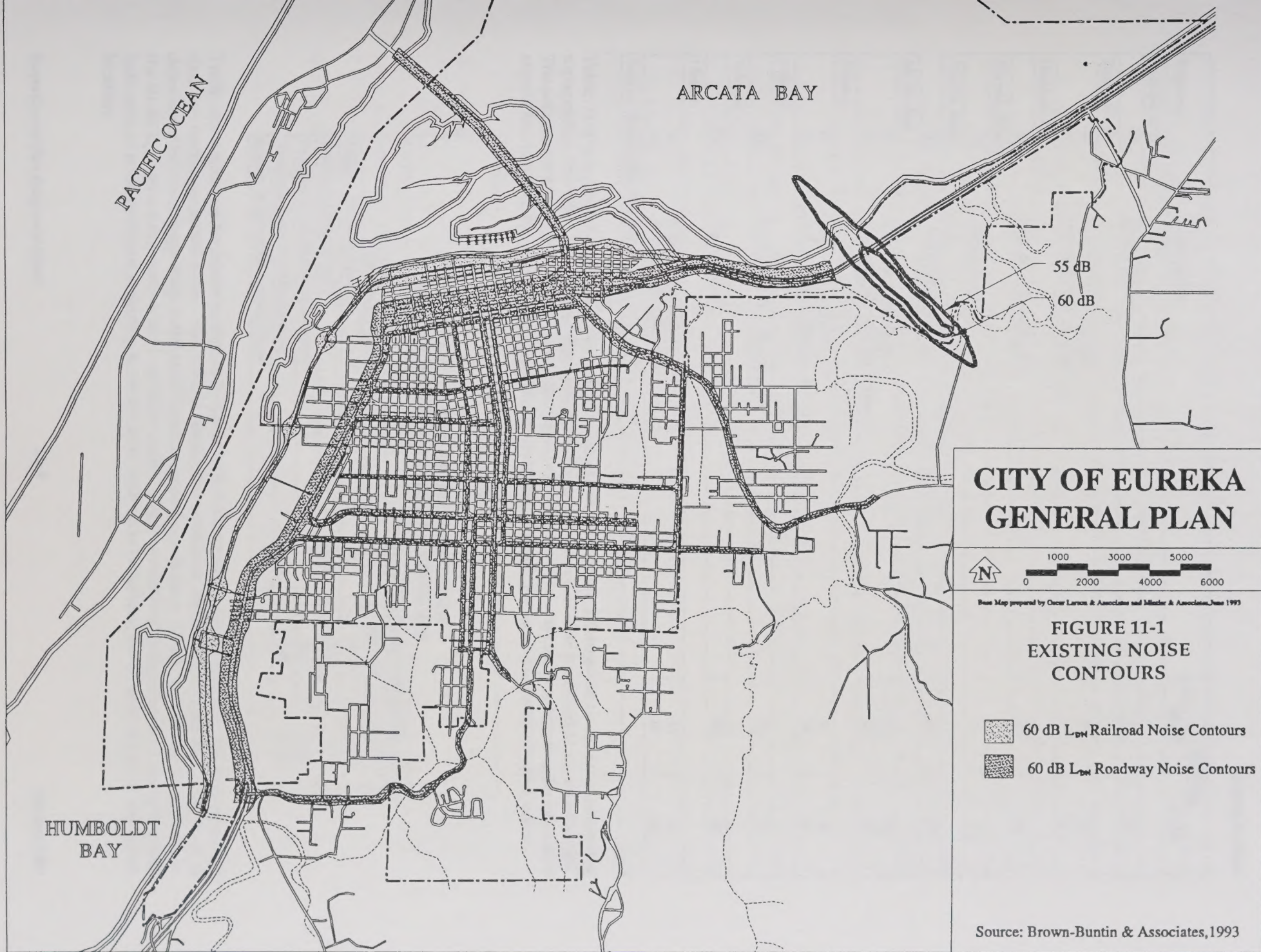
ROADWAYS

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop L_{dn} contours for all highways and major roadways in the Eureka General Plan Planning Area. The FHWA model is the analytical method presently favored for traffic noise prediction by most state and local agencies, including Caltrans. The model is based upon the CALVENO noise emission factors for automobiles, medium trucks, and heavy trucks, and the model inputs include vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The model predicts hourly L_{eq} values for free-flowing traffic conditions and is generally considered to be accurate within 1.5 dB. The model also predicts L_{dn} values based on the hourly distribution of traffic for a typical 24-hour day adjusted to yield an equivalent hourly traffic volume.

Using traffic data obtained from Caltrans and the City of Eureka, Brown-Buntin Associates calculated traffic noise levels (as defined by L_{dn}) for existing traffic volumes. In some cases, the actual distances to noise level contours may vary from the distances predicted by the FHWA model. Factors such as roadway curvature, roadway grade, shielding from local topography or structures, elevated roadways, or elevated receivers may affect actual sound propagation. Table 11-2 shows distances from the centerlines of selected roadways to the 60 and 65 dB L_{dn} contours. Figure 11-1 shows the locations of the 60 dB L_{dn} roadway noise contours. Traffic data representing annual average traffic volumes for existing conditions are summarized in Appendix A.

TABLE 11-2
DISTANCES FROM THE CENTERLINES OF ROADWAYS
TO THE 60 AND 65 DB L_{DN} CONTOURS

Segment	Description	Existing	
		60 dB	65 dB
State Route 101			
1	Herrick Rd. - Harris St.	295	137
2	(On Broadway) Harris St. - Wabash Ave.	270	125
3	(On Broadway) Wabash St. - 5th St.	264	122
4	(On 5th St.) Broadway - S.R. 255	179	83
5	(On 5th St.) S.R. 255 - End of 5th St.	164	76
6	End of 5th St. - Murray Field	305	141
7	(On 4th St.) Broadway - S.R. 255	179	83
8	(On 4th St.) S.R. 255 - End of 4th St.	160	74
State Route 255			
9	Myrtle Ave. - Samoa Peninsula	117	54
6th Street			
10	Entire Length	58	27
7th Street			
11	Entire Length	65	30
14th Street			
12	Entire Length	45	21
Wabash Ave.			
13	Entire Length	73	34
Buhne Street			
14	J St. - Harrison Ave.	65	30
Henderson Street			

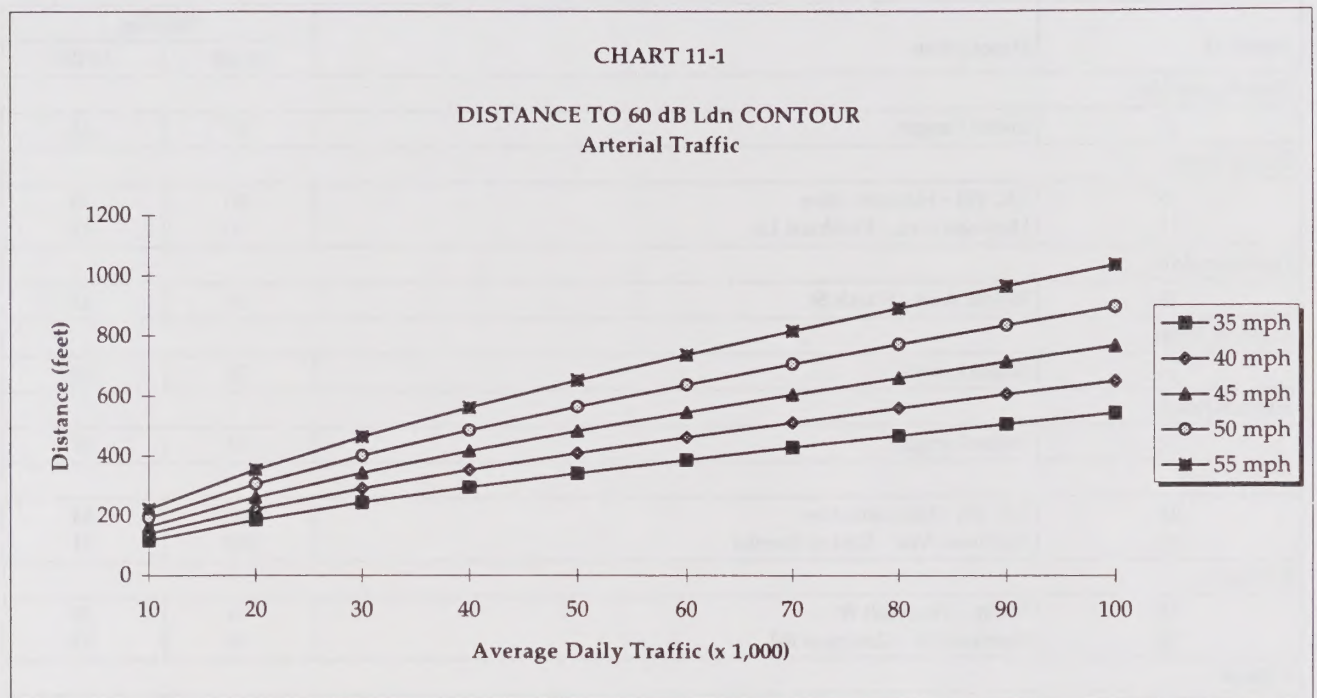


Segment	Description	Existing	
		60 dB	65 dB
State Route 101			
15	Entire Length	97	45
Harris Street			
16	S.R. 101 - Harrison Ave.	76	35
17	Harrison Ave. - Hubbard Ln.	90	42
Harrison Ave.			
18	Myrtle Ave. - Harris St.	90	42
Fairway Road			
19	Entire Length	76	35
Herrick Road			
20	Entire Length	83	39
Myrtle Ave.			
21	S.R. 101 - Harrison Ave.	138	64
22	Harrison Ave. - East of Eureka	109	31
E Street			
23	7th St. - Humbolt St.	61	28
24	Humbolt St. - Campton Rd.	76	35
F Street			
25	Henderson St. - Campton Rd.	73	34
H Street			
26	Entire Length	103	48
I Street			
27	7th St. - Del Norte St.	48	22
28	Del Norte St. - Harris St.	69	32
Source: Brown-Buntin & Associates			

Table 11-3 is a guide for applying the traffic noise exposure contour information to areas with varying topography. The table is used by adding the correction factor to the noise level predicted at a given distance. The adjustment factors presented in this table are intended to provide worst-case results; complex situations should be evaluated by an acoustical consultant where the potential for significant noise impact exists.

TABLE 11-3			
TRAFFIC NOISE ADJUSTMENTS FOR VARIOUS TOPOGRAPHIC CONDITIONS			
Topographic Situation	Distance from Center of Roadway (Feet)		
	<200	200 - 400	>400
Hillside overlooks roadway	-0-	+1 dB	+3 dB
Roadway Elevated (>15')	-5 dB	-2 dB	-0-
Roadway in cut/below embankment	-5 dB	-5 dB	-5 dB
Dense vegetation (100 feet or more)	-5 dB	-5 dB	-5 dB
Source: Brown-Buntin & Associates			

Traffic noise contours for roadway segments not analyzed above may be determined by using generalized data for traffic-generated noise. For arterial traffic, the predicted distance to the 60 dB L_{dn} contour is determined by the average daily traffic (ADT) and the posted speed limit. Chart 11-1 shows the distance to the 60 dB L_{dn} contour for various levels of daily traffic. Contours derived from Chart 11-1 are only gross indicators of noise problems requiring more detailed analysis to determine traffic noise levels at any given location.



RAILROADS

The North Coast Rail Authority operates freight trains twice each day in Eureka (i.e., one during the daytime hours and one during the nighttime hours). Freight trains operating without the use of a horn (assuming a speed of less than 25 mph) typically have an average sound exposure level (SEL) of 93.4 dB and a maximum (L_{max}) of 89.0 dB at a distance of 100 feet. Freight trains operating with the use of a horn typically have an average SEL of 106.2 dB and a maximum (L_{max}) of 101.0 dB at a distance of 100 feet.

The distance to the 60 dB railroad L_{dn} contour for typical freight train operations was calculated using SEL data and the number and distribution of daily freight train operations discussed above.

The L_{dn} was calculated as follows:

$$L_{dn} = SEL + 10 \log N_{eq} - 49.4 \text{ dB, where:}$$

SEL is the mean SEL of the event, N_{eq} is the sum of the number of daytime events (7 a.m. to 10 p.m.) per day plus ten times the number of nighttime events (10 p.m. to 7 a.m.) per day, and 49.4 is ten times the logarithm of the number of seconds per day.

Table 11-4 shows the generalized distances to the 60 and 65 dB L_{dn} noise contours associated with railroad operations within the City of Eureka.

Operation	L_{dn} dB, 100 Feet From Tracks	Distance to L_{dn} Contour (feet)	
		60 dB	65 dB
With Horn	67.2	300	140
Without Horn	54.4	42	20

Source: Brown-Buntin & Associates

FIXED NOISE SOURCES

In addition to noise generated by the operation of motor vehicles and trains, noise is generated by various kinds of activities at fixed locations. For example, many manufacturing uses create unwanted noise even when the best available noise control technology is applied. Commercial, recreational, and public service facility activities also can produce unwanted noise. Noise from these sources can be continuous or may contain tonal components which may be annoying to individuals who live in the nearby vicinity. In addition, noise generation from fixed noise sources may vary based upon climatic conditions, time of day, and existing ambient noise levels.

Local jurisdictions typically work to achieve two goals when regulating fixed noise sources: 1) to prevent the introduction of new noise-producing uses in noise-sensitive areas and 2) to prevent encroachment of noise sensitive uses upon existing noise-producing facilities. The first goal is typically achieved by applying noise performance standards to proposed new noise-producing uses. The second goal can be met by requiring that new noise-sensitive uses in proximity to noise-producing facilities include mitigation measures to insure compliance with noise performance standards.

There are numerous industrial facilities dispersed throughout the General Plan Planning Area. The following descriptions of existing fixed noise sources are intended to be representative of the relative noise impacts of such uses.

LOUISIANA PACIFIC

The Louisiana Pacific lumber mill is located on the Samoa Peninsula, outside Eureka's city limits. Noise sources associated with the lumber mill include logging trucks, on-site heavy equipment used for moving logs, a saw mill, and large blowers. Noise level measurements conducted on July 21, 1993, at 10:10 pm along the waterfront within Eureka, indicated that general activity associated with the lumber mill produced an average noise level of 46 dB L_{eq} within Eureka (approximately 2,700 feet from the lumber mill). The measurement site was at the waterfront near Washington Street. The main sources of noise in the mill were blowers and fans; secondary noise came from backup bells and heavy machinery.

SCHMIDBAUER LUMBER INC.

Schmidbauer Lumber Inc. is located along Washington Street, and borders 14th Street on the south and Railroad Avenue on the west. The main sources of noise at the lumber company were conveyors, blowers, forklifts, backup bells, and banging of materials and equipment. Noise level measurements were conducted on July 21, 1993, between 10:25 pm and 10:40 pm. The projected distance to the worst case 50 dB L_{eq} noise contour is approximately 630 feet from the lumber mill. Table 11-5 shows noise level measurements for Schmidbauer Lumber.

TABLE 11-5

NOISE LEVELS AT SCHMIDBAUER LUMBER

Location	Sound Level, dB	Distance	Noise Sources
Northwest side @ Washington St.	53 dB L_{eq}	200 feet	Elevators, conveyors
East side @ Koster St.	57 dB L_{eq}	400 feet	Conveyors, fork lifts Backup bells
South side @ 14th St.	58 dB L_{eq}	250 feet	Conveyors, fork lifts
Southwest side @ Railroad Ave.	56 dB L_{eq}	200 feet	Fork lifts
Source: Brown-Buntin & Associates			

PACIFIC CHOICE SEAFOOD

The Pacific Choice Seafood Company is located along Waterfront Drive. The main sources of noise at the plant were three large cooling fans facing Waterfront Drive and truck traffic moving to and from the site. The majority of truck traffic occurs during the daytime hours when ambient traffic noise levels in this light industrial area dominate the overall noise environment. Noise level measurements of the fans indicate that they produce a steady-state noise level of 60 dB at a distance of 50 feet. The distance to the 50 dB L_{eq} contour is estimated to be 160 feet from the building facade.

REDWOOD ACRES RACEWAY

The Redwood Acres Raceway is located east of Eureka's city limits at the Redwood Acres Fairgrounds. The raceway conducts stock and sprint car races periodically during the evening. The 1993 schedule of events included 19 days of racing. Time trials typically begin at 5:00 pm and racing concludes at approximately 11:00 pm. Racing was not scheduled during the time when noise measurement field work was conducted. Similar racing activity noise level measurements were conducted for the Silver Dollar Speedway in Chico, California. Typical noise levels associated with raceway operations are such that the worst case hourly noise level of 50 dB L_{eq} would be located approximately 7,000 feet from the racetrack.

TIRE AND MUFFLER SHOPS (AT VARIOUS LOCATIONS)

Tire and muffler shops are operated at various locations in Eureka. The main sources of noise at muffler and tire stores were impact wrenches and hammers, compressors, and tire breakers. Impact wrenches and hammers produce sound levels of about 89 dB at a distance of 10 feet. The average duration for an impact wrench is approximately 15 seconds for each wheel. Tire breakers produce significant noise levels due to the release of air pressure through a number of small holes adjacent to the tire sidewall. Noise due to the tire breaker reaches a maximum level of about 105 dB at a distance of 10 feet. The high noise levels due to tire breakers last less than 1 second. Air supply compressors emit about 60 dB at a distance of 50 feet, and are operated intermittently during the work day. Location of the average hourly noise contour for tire and muffler shops varies based on the location of the equipment, the degree to which the noise is shielded by adjacent building facades, and the frequency of use.

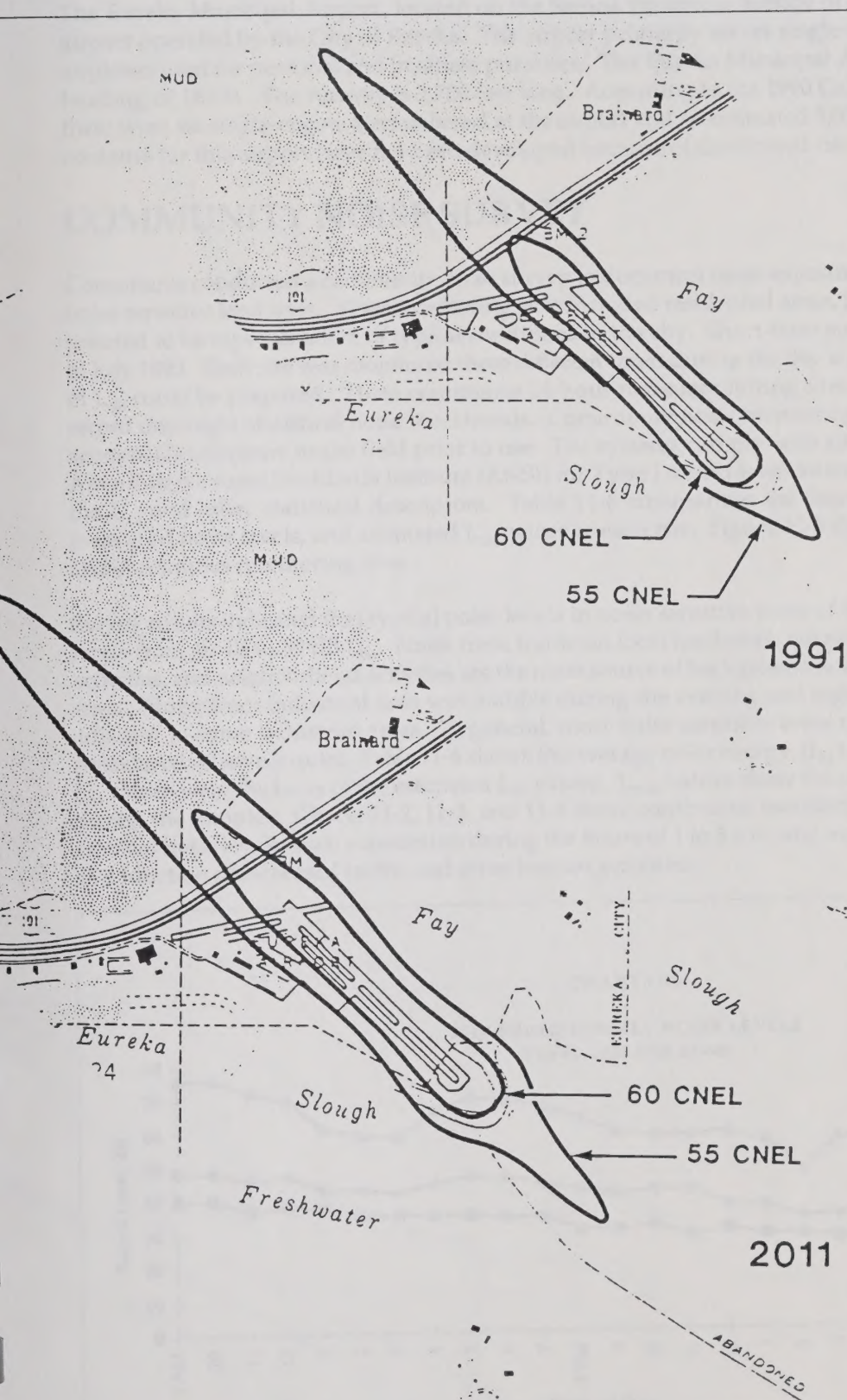
METAL FABRICATING SHOPS (AT VARIOUS LOCATIONS)

Metal fabricating shops are operated at various locations in Eureka. The main sources of noise at metal fabricating shops were cutting and welding equipment, forklifts, and heavy truck traffic. Typical average hourly noise levels from these types of facilities are 50 to 55 dB at a distance of approximately 250 feet. The worst case location of a 50 dB L_{eq} contour is approximately 450 feet from the noise source.

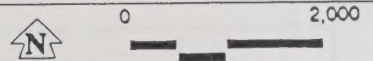
AIRPORT NOISE

MURRAY FIELD

Murray Field is a public use airport operated by Humboldt County located within the city limits just east of Eureka Slough. Murray Field primarily serves single-engine and small twin-engine airplanes used for personal and business purposes. The airport is also used for flight training and limited charter and cargo operations. Murray Field has two runways with diectional headings of 110-290 degrees (11/29) and 70-250 degrees (07/25). The runway lengths are 3,000 feet and 2,030 feet respectively. According to the 1993 Murray Field Master Plan Report, there are currently 79 aircraft (69 single-engine and 10 twin-engine) based at the airport and an estimated 63,164 operations each year. The current (1991) and future forecast (2011) noise contours for Murray Field are presented in Figure 11-2. Noise contours for runway 07/25 have not been developed because of the limited use of this strip.



CITY OF EUREKA GENERAL PLAN



Base Map prepared by Oscar Latorre & Associates and Martin & Associates, June 1993

**FIGURE 11-2
MURRAY FIELD
NOISE CONTOURS**

Source: Murray Field Master Plan
Report, 1993

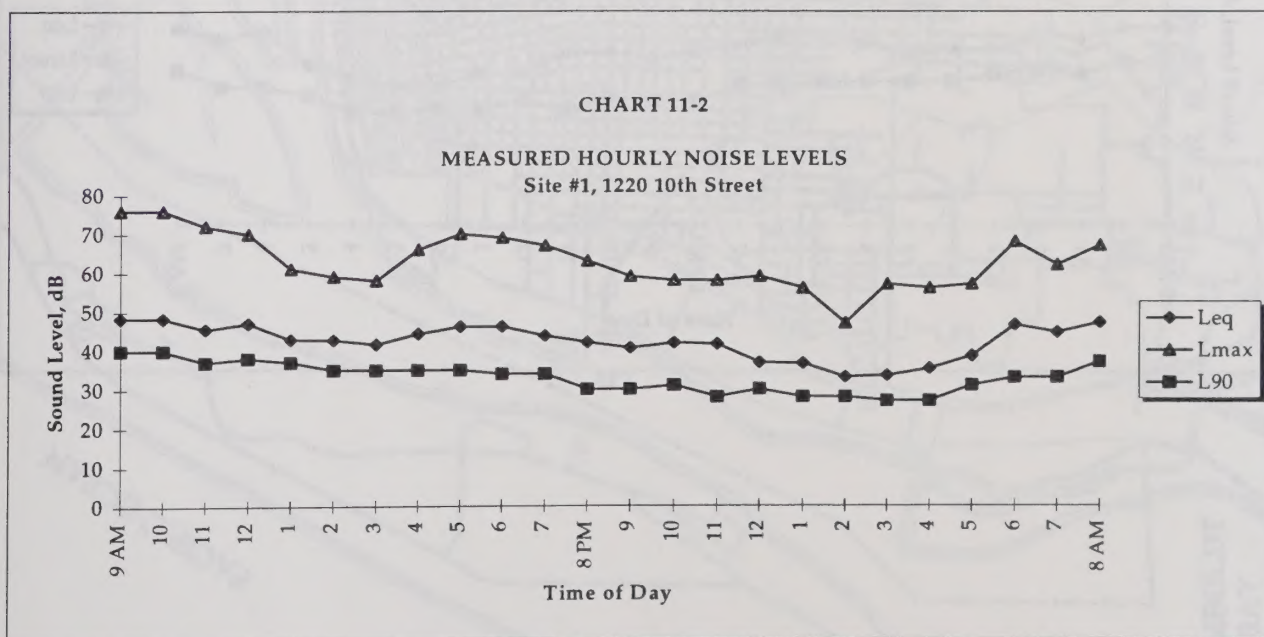
EUREKA MUNICIPAL AIRPORT

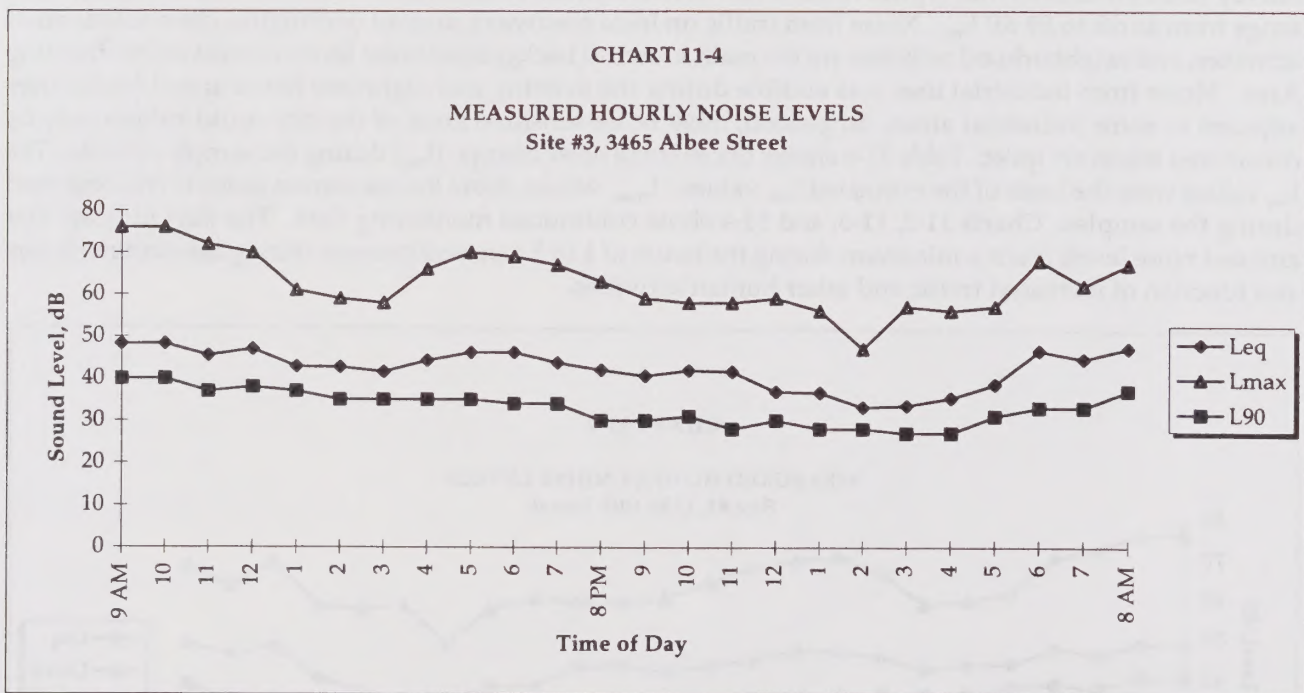
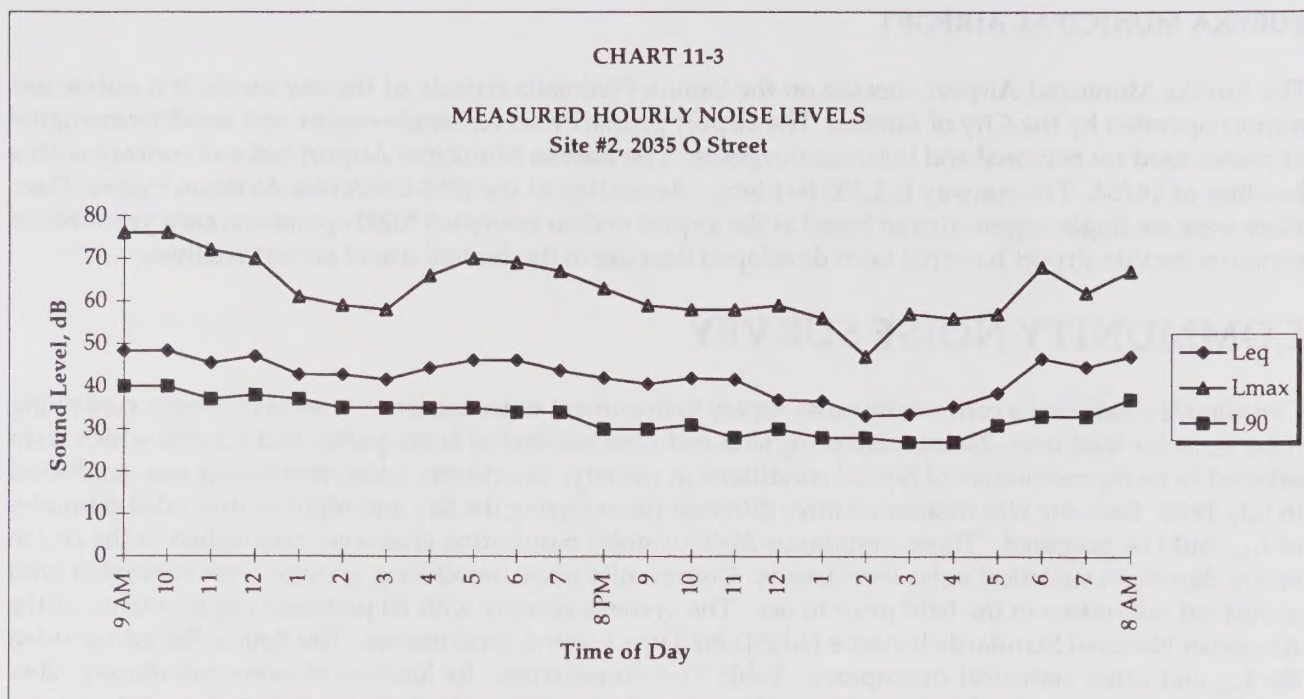
The Eureka Municipal Airport, located on the Samoa Peninsula outside of the city limits, is a public use airport operated by the City of Eureka. The airport primarily serves single-engine and small twin-engine airplanes used for personal and business purposes. The Eureka Municipal Airport has one runway with a heading of 16/34. The runway is 2,700 feet long. According to the 1990 California Aviation System Plan, there were six single-engine aircraft based at the airport and an estimated 5,000 operations each year. Noise contours for this airport have not been developed because of the limited use of airport facilities.

COMMUNITY NOISE SURVEY

Consultants conducted a community noise survey to document noise exposure in areas of the city containing noise sensitive land uses. Noise monitoring sites included residential areas, parks, and schools which were selected to be representative of typical conditions in the city. Short-term noise monitoring was conducted in July 1993. Each site was monitored three different times during the day and night so that valid estimates of L_{dn} could be prepared. Three continuous 24-hour noise monitoring sites were established in the city to record day-night statistical noise level trends. Community noise monitoring systems were calibrated with acoustical calibrators in the field prior to use. The systems comply with all pertinent requirements of the American National Standards Institute (ANSI) for Type I sound level meters. The data collected included the L_{eq} and other statistical descriptors. Table 11-6 summarizes the location of noise monitoring sites, measured noise levels, and estimated L_{dn} values at each site. Figure 11-3 shows the location of short-term and continuous monitoring sites.

Survey results indicated that typical noise levels in noise sensitive areas of the General Plan Planning Area range from 46 dB to 59 dB L_{dn} . Noise from traffic on local roadways, aircraft overflights, distant industrial activities, and neighborhood activities are the main source of background noise levels in most of the Planning Area. Noise from industrial uses was audible during the evening and nighttime hours at residential uses adjacent to some industrial areas. In general, most noise-sensitive areas of the city could subjectively be considered relatively quiet. Table 11-6 shows the average noise energy (L_{eq}) during the sample periods. The L_{eq} values were the basis of the estimated L_{dn} values. L_{max} values show the maximum noise levels observed during the samples. Charts 11-2, 11-3, and 11-4 show continuous monitoring data. The data indicate that ambient noise levels reach a minimum during the hours of 1 to 5 a.m. and increase during the daytime hours as a function of increased traffic and other human activities.





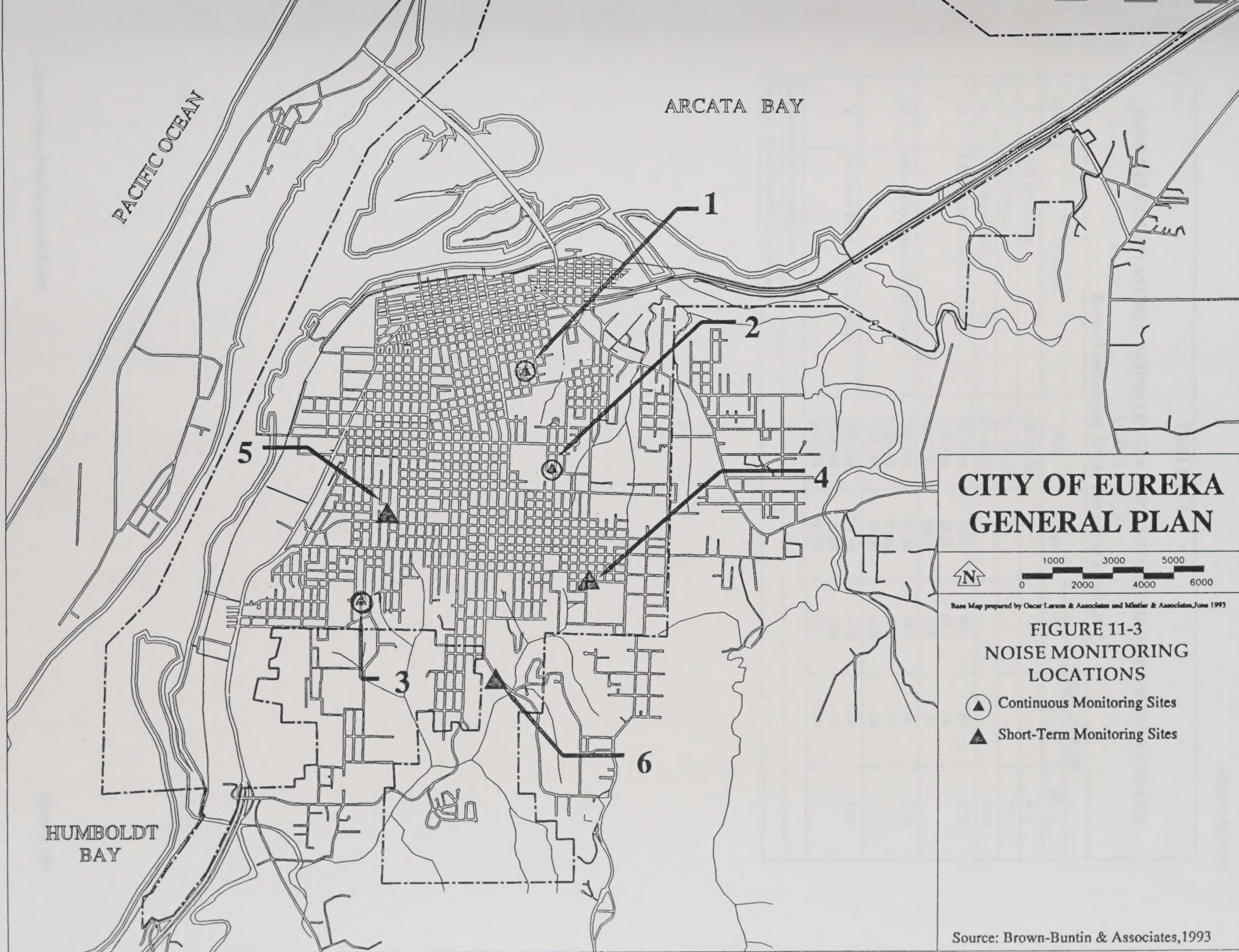


TABLE 11-6

**SUMMARY OF MEASURED NOISE LEVELS AND ESTIMATED DAY-NIGHT AVERAGE
LEVELS (L_{dn})
Areas Containing Noise Sensitive Land Uses**

Site	Location	Date	Time	Sound Level, dB		
				L_{eq}	L_{max}	Est. L_{dn}
1*	1220 10th Street	7/21-22/93	--	--	--	47.0
2*	2035 O Street	7/21-22/93	--	--	--	59.2
3*	3465 Albee Street	7/21-22/93	--	--	--	48.0
4	T St./Glatt St. (Sequoia Park)	7/21/93	13:30	46.0	60	47.0
		7/21/93	23:00	37.3	54	
		7/22/93	08:15	47.0	59	
5	End of Pine Street (20/30 Park)	7/21/93	14:00	48.3	63	52.0
		7/21/93	23:20	44.5	55	
		7/22/93	09:00	46.5	58	
6	Campton Road, South of Oak St.	7/21/93	14:30	43.5	56	46.0
		7/21/93	23:35	38.3	44	
		7/22/93	09:30	41.2	55	

*Continuous Monitoring Site

Source: Brown-Buntin & Associates

FINDINGS

- Roadway traffic noise is the primary noise source in the City of Eureka. S.R. 101 and major arterials dominate the noise environment.
- The waterfront industrial area is also a major noise source, as is the Louisiana Pacific Lumber Mill on Somoa Island. These noise sources are more localized, with few noise-sensitive receivers within close proximity.
- Currently, railroad operations are not a significant noise source. However, future use of the line is uncertain, and increased activity along the line could result in higher noise levels.
- Aircraft overflights associated with activity at the City of Eureka airport and Murray Field may cause some annoyance. However, daily average CNEL values associated with aircraft operations are not considered to be a significant noise source within the city.

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GLOSSARY OF ACOUSTICAL TERMINOLOGY

Ambient Noise Level: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL: Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

DECIBEL, dB: A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

L_{dn} : Day-Night Average Sound Level. The average equivalent sound level during a 24-hour day obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{eq} : Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computer over 1, 8, and 24-hour sample periods.

(Note: CNEL and L_{dn} represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.)

L_{max} : The maximum sound level recorded during a noise event.

L_n : The sound level exceeded "n" percent of the time during a sample interval. L_{10} equals the level exceeded 10 percent of the time (L_{90} , L_{50} , etc.)

Noise Exposure Contours: Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and L_{dn} contours are frequently utilized to describe community exposure to noise.

SEL or SENEL: Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure level for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

SOUND LEVEL: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

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